

# Railway Age

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## Speed in Passenger Service

**C**ERTAIN railroad patrons, particularly in Southern California, are reported to be attempting to interest the railroads in speeding up their schedules on long distance trains. Whatever the outcome of these negotiations, the fact remains that speed is not so important in a journey which involves days as it is in one where hours alone are concerned. In the former case, a reduction of a few hours may not mean as much to the traveling public as a reduction of minutes in the latter—particularly where the length of the journey is less than a business day and where the shortening of the schedules will enable business men who travel to spend that much more time at business. In general, it may be said that the former situation prevails on this continent and the latter in England. That being the case, it will perhaps be of interest to note how the British railways are meeting the demands for this kind of service. According to the *Railway Gazette* (London), the British railways operate every day 10,400 train miles at average speeds above 55 miles per hour, as compared with 11,700 before the war. There are four trains which average better than 60 m.p.h. and four more which exceed 59. There are 32 trains which run from starting point to destination without a stop, including two over distances exceeding 200 miles. There can be no doubt but that this is excellent service in the meeting of local requirements. On the other hand, although sleeping car service in Britain is excellent, there is no part of the world in which through passenger service for long distances is good in so many respects as in the United States.

## Training Officers and Foremen

**O**NE of our friends takes some exception to the editorial comment in the *Railway Age* of August 22, entitled, "Help from the Universities." "This editorial is good," he says. "I would, however, call your attention to the fact that the boss of the foreman and the boss of the supervisor is the one to train him in each case. I don't see how the training can be had in any other way." Possibly we should have gone a bit further in explaining exactly how the material developed by the universities could best be made use of by the railroads. In most cases the extension departments of the universities do not have a large enough staff to actually lead the foremanship training classes. They do place the material which they have developed at the disposal of the different groups, giving them some assistance in leadership, but in most cases depending largely upon the group to furnish its own leadership. Thus, at the Sayre enginehouse on the Lehigh Valley, the master mechanic leads his associates in the group discussions and encourages and helps them as individuals to carry on their studies. In the system shops at the same point, the class work is under the direction of the supervisor of apprentices, but the shop superin-

tendent is intensely interested and is a large factor in making the work of the group a success. In effect, therefore, this meets the criticism of our correspondent. The English railroads give far more attention to the training of the workers than do American roads. It is recognized that this work must be promoted and directed by the railroad officers, but it is significant that these practical railroad officers are calling upon the educational experts at the higher schools and universities for assistance. This combination of the practical railroad officer and the educational expert cannot but give excellent results. There is room for a larger degree of such co-operation in this country.

## Decline in Number of Locomotives

**T**HE extent to which the railways are relying on improvements in and increased tractive power of locomotives, and on better utilization of the available power, to enable them to handle increased freight business is shown by the decline in the number of locomotives on line which went on steadily in the ten months which ended with July. In these months the number of locomotives installed was 1,655, while the number retired was 2,314. Meantime the number stored actually increased, being 5,424 on October 1, 1924, and 6,313 on August 1, 1925. The total locomotives Class I railroads had on line on August 1, was 63,921. This is the smallest number reported since July 1, 1923, and is, in fact, the smallest number reported within the last four years except at the middle of June and the beginning of July, 1923, after a period of heavy retirements undoubtedly due to the fact that a large number of locomotives got into extremely bad condition as a result of the shop employees' strike. The number of locomotives the Class I roads had on line on August 1 of this year was 565 less than on August 1, 1924; 19 less than on August 1, 1923; 349 less than on August 1, 1922, and 886 less than on August 1, 1921. These statistics are in striking contrast to those regarding freight cars. In 1924 the number of freight cars placed in service was 147,960 and the number retired 116,637, an increase of 31,323. In the first seven months of 1925 the number of freight cars placed in service was 92,263 and the number retired 68,390, an increase of 23,873. In the year ended June 30, 1916 the number of locomotives retired exceeded the number installed by 1101. This is much the largest reduction in their number ever reported in any year. The next largest was in the year ended December 31, 1922, when retirements exceeded installations by 456. As already noted, however, in the ten months ending with August retirements exceeded installations by 659, and even in the twelve months ended with August they exceeded installations by 586, a higher figure than that for the calendar year 1922. The new locomotives are, of course, of greater tractive power than those that they have replaced and no doubt the aggregate

tractive power is being maintained or increased. Furthermore, it would appear from the statistics that an increasing amount of service is being secured not only from each locomotive, but also from each pound of tractive power. At the same time, the facts given suggest, especially in view of the increase of freight business that is occurring, that the railways must have about reached the end of the period when they could safely reduce the number of available locomotives.

### *The Railway Situation in Canada*

CANADA will have an election this fall and the present Liberal government will stand behind the record of the present administration of the Canadian National Railways, with the chief executive of which, Sir Henry Thornton, it has just renewed its contract for a term of three years. The Premier in announcing the dissolution of Parliament and the call for an election stressed his opposition to a railway monopoly under either public or private ownership, but at the same time he advocated the co-operation of the two principal railways in reducing wasteful competition. This definite stand on the part of the Liberal party and the failure of the other parties yet to declare themselves along essentially different lines gives scant support to rumors, which have gained some currency, to the effect that amalgamation of the Canadian railways into one large system is imminent. However, whether railway consolidation bulks large in the Canadian political campaign or not, the railway question will be prominently before the people this fall. The Board of Railway Commissioners is making a general investigation of the rate structure of the Dominion and its findings will be of greatest importance. Meantime it has issued an order reducing rates on grain and flour moving to Pacific ports to the same basis as that fixed by law for these commodities moving to the head of the Great Lakes. It will be remembered that in the railway rate bill recently passed by Parliament, the Board was instructed to establish just and reasonable rates in all cases, except that on grain and flour moving to the head of the lakes certain maxima should not be exceeded. The Board has gone to Parliament one better and extended these arbitrarily low rates to other territory. It will be interesting to see where the line between the application of such arbitrary standards and really scientific rate making, giving due regard to the cost of the service, will be drawn.

### *A Turning Point in Regulation*

THE *Railway Age* believes that the policy of government regulation of railways entered the most critical period in its history this week when hearings on the petition of the western lines for an advance in freight rates began in Chicago. The outcome of these hearings will be a decision by the Interstate Commerce Commission regarding the policy that it will follow in future in applying the principles of ratemaking set forth in the Transportation Act and the Hoch-Smith resolution. It seems probable that this decision will in future years stand out as the turning point at which government regulation finally began to be a success, making a continuance of private ownership certain, or a failure making avoidance of government ownership difficult or impossible.

Before these statements are pronounced too strong consideration should be given to the past history and present conditions upon which they are predicated. The policy of railway regulation followed before the war was in

certain vital respects a failure. It did much good. It stopped indiscriminate pass giving, rebating and the illegitimate political activities of the railways. On the other hand, it largely disregarded general economic tendencies and the needs of the railways that these tendencies created. In a period of advancing wages and prices most of the members of the Interstate Commerce Commission could not or would not see the effects that these influences must have on railway operating costs, and refused to grant the advances in rates necessary to compensate for increasing costs. In consequence, from 1910 to 1917, except when there was a sudden and unprecedented increase of traffic in 1916, the ratio of operating expenses and taxes to total earnings increased, the percentage of net return earned on property investment decreased, and the new investment made in the railways declined until the transportation crisis of the war resulted in the adoption of government operation.

The Transportation Act was passed when the results of the pre-war policy of regulation, and those of government operation, were still fresh in the minds of members of Congress and of the public. The purpose of that legislation was to make it possible safely to return the railways to private operation and to cause the adoption of a policy of regulation which, unlike that followed before the war, would promote successful private management and adequate railway development.

Although five years have elapsed since the Transportation Act went fully into effect the letter of its provisions has never been carried out in its administration by the Interstate Commerce Commission. The Commission has definitely stated what net return it believes it should allow the railways of each group to earn, but no group of railways has on the average come anywhere near earning that return. The deficiency of the return of the western lines has been, and still is, especially large.

The policy that has been followed by the commission may be defended on the ground that while it has not apparently conformed to the letter it has conformed to the spirit of the law, because during most of the time since 1920 business conditions have been abnormal, and have been especially bad in the agricultural industry in the West, and that under such conditions it was not the intent of the law that the railways should be allowed to charge rates high enough to enable those of each group in each year to earn a "fair return".

If, however, it was not the intent of the law that each group of railways, or the railways as a whole, should have their rates so fixed as to enable them to earn a "fair return" when business was poor, it must have been its intent that they should be allowed, when business was good, to earn not only a "fair return", but enough more than a "fair return" to offset the deficiency incurred when business was poor. If the ratemaking provisions of the Transportation Act do not mean this, then they do not mean anything. If they do not mean this, then Congress, in passing them, did not mean to cause the policy of rate regulation followed before the war to be changed except by the recapture of earnings over six per cent from the more prosperous roads. To put this interpretation upon the Transportation Act is to assume that Congress, in passing it, solemnly perpetrated a fraud upon the public, and especially upon railway managers and investors.

Railway managers and investors have thus far proceeded upon the assumption that Congress in passing the act did not perpetrate a fraud, but meant that the Interstate Commerce Commission should so carry out its provisions so as to enable the railways to earn, on the average, a fair return. They have accordingly gone forward furnishing and investing capital required to make it pos-

sible for the roads to render increasingly good, adequate and economical service.

Every business condition which can be considered as a justification of the way the commission has thus far administered the ratemaking provisions of the Transportation Act has now ceased to exist. In every section and almost every industry prosperity has been or is rapidly being restored. There is no longer any good reason, therefore, why both the plain letter and spirit of the rate-making provisions should not be given full effect. The commission, by the policy it has followed heretofore, has implied that in its opinion the law does not contemplate that rates shall be so fixed that in years of poor business the railways will be able to earn their full "fair return". Neither the law nor decisions of the courts say, however, that the "fair return" is a maximum which may be earned only in good years. The plain purport of the law and of decisions of the courts is that it is an average that shall be allowed to be earned over periods of years. Since during the last five years no group of railways has earned on the average a "fair return," it must follow that while the country is prosperous each group of railways will be entitled to earn more than the so-called "fair return".

The western lines are asking for an advance in rates which, even if granted, will not enable them, unless there is a substantial increase in their traffic, to earn a "fair return". The railways in some territories are earning at the rate of  $5\frac{3}{4}$  per cent and in other territories slightly more. These facts and conditions make it necessary for the commission, not merely by what it says, but by what it does, to place beyond any further question what policy in the regulation of rates—whether the same policy it followed before the war or a different policy—it intends to pursue in future.

The commission will be immediately applauded by some and hissed by others regardless of the policy its decisions in the important proceedings now before it indicate it will follow. In the long run, however, the policy it follows will be approved by public sentiment if it is economically sound, and condemned by public sentiment if it is uneconomically unsound. When before the war it refused to grant advances in rates it was applauded by many shippers and public men. When, however, subsequent developments demonstrated that the policy adopted by it was economically unsound it was condemned by most of those who had originally applauded it, and the public's condemnation was written into the ratemaking provisions of the Transportation Act.

Most of the personnel of the commission, as well as the law administered by it, has been changed since before the war. To say, however, there is no doubt that the present personnel of the commission, in spite of the present provisions of the law, will proceed more in conformity with economic conditions, needs and tendencies than did their predecessors would be to express an optimism which no intelligent observer can feel. The commission still seems to manifest in dealing with many important questions a fear to give justice to the railways and investors in their securities lest it be made the object of attack by labor leaders and radical politicians. If the policy followed by it in future is dictated entirely by legal and economic considerations, then the present scheme of private management and government regulation will become a success and public sentiment will support it. If the commission's future policy is dominated, or even largely influenced, by other considerations, then the definite trend which prevailed for years before the war toward the failure of private management and the adoption of government ownership will be renewed. The commission stands at the "great divide", and its decision as to the direction in which it will go will be a momentous one.

## The Future of the Tool Foremen's Association

THE fall conventions of the subordinate mechanical department associations are now in full swing, the master blacksmiths having just met in Cleveland, Ohio, and the tool foremen and the general foremen in Chicago. These associations received a severe set-back during 1922 and 1923 when labor conditions following the shopmen's strike necessitated the cancellation of convention plans. They are now getting reorganized and accomplishing results which unquestionably justify the money spent on them. The general conclusion is unavoidable, however, that they are little more than scratching the surface of their possible usefulness in standardizing good shop practices and reducing mechanical department costs.

The American Railway Tool Foremen's Association, which held its most successful convention of recent years on September 2-4, may be taken as an example. Several excellent papers and reports were presented at this meeting. The exhibit was large and contained, as stated on the floor of the convention, some of the finest examples of the toolmaker's art. The association agreed on the general design of a standard reamer, the subsequent adoption of which by the Mechanical division may well save the railroads as a whole many thousands of dollars annually. But in spite of this good work there is ground for criticism of the association. It is composed of some of the ablest railway toolmakers in this country. Why has it been so long in agreeing on the best type of reamer for railroad use? How about the many other types of tools which, if standardized, could be bought cheaper and would cause greater production? The year book of the association should be a valuable reference book on tool making. Why does it appear almost a year after the convention, without an index of any kind and including much extraneous discussion of little or no value? There are in the neighborhood of 1,000 shops and 3,000 enginehouses on Class I railroads. Why does the total enrollment of the tool foremen's association number only 125 paid-up members? This entirely inadequate membership, responsible in no small degree for the failure of the association (in common with all the other mechanical department associations to a degree) to realize its full opportunities, may be charged to two things, lack of promotion on the part of present and past members and, at least equally important, to lack of recognition by higher railroad officers.

According to the latest figures available, 518,003 men are employed on maintenance of equipment work, for which they are paid \$66,228,792 a month. The tremendous responsibility of providing these men with the best working tools, in adequate number and in good working condition, rests largely on the railway tool foremen. It is not hard to visualize the possibilities of a fully-attended tool foremen's convention, and yet one superintendent of motive power of a large trunk line explained the absence of his men from the convention on the ground that they could not be spared from their respective jobs for the three days which attendance at the convention would require. Are three days in a year too long a time to permit tool foremen to get together and catch new inspiration for their next year's work? Will not the absence of the tool foreman afford a good opportunity to break in his young assistant who is, or should be, in process of training?

If the hearty support of the higher officers can be secured for the tool foremen there is no doubt that their association can be made a success and a real money saver

for the railroads. The personnel of the officers and committees selected this year leaves little doubt that the foremen will do their part. An improvement in the year book and the administration of the association's business is assured. The work of standardization of tools is progressing under the direction of a competent committee. With a little additional recognition on the part of higher officers, the American Railway Tool Foremen's Association will live up to its motto, "For Greater Efficiency in Railway Tool Service."

## After 1893 and 1920— A Remarkable Parallel

THE trend of both freight and passenger traffic upon the railways within the last five years is without any precedent in the last quarter century. Freight tonnage never from 1900 to 1920 failed to be larger in any year than it was three years before, and never from 1901 to 1920, except in 1915 and 1916, did the number of passengers carried fail in any year to exceed all previous records. On the other hand, in three of the four full years that have elapsed since 1920 revenue tonnage has

TRENDS OF TRAFFIC FOLLOWING 1893 AND 1920

Year	Revenue Tons		Per cent increase or decrease over 1893
	All roads	Increase or decrease over 1893	
1893.....	745,119,482	.....	.....
1894.....	638,186,553	-106,932,929	14.4
1895.....	696,761,171	-48,358,311	6.5
1896.....	753,716,562	+8,597,080	1.2
1897.....	728,900,275	-16,219,207	2.2
1898.....	863,628,605	+118,509,123	15.9
Year	Passengers Carried		Per cent increase or decrease over 1893
	All roads	Increase or decrease over 1893	
1893.....	593,560,612	.....	.....
1894.....	540,688,199	-52,872,413	8.9
1895.....	507,421,362	-86,139,250	14.5
1896.....	511,772,737	-81,787,875	13.8
1897.....	489,445,198	-104,115,414	17.5
1898.....	501,066,681	-92,493,931	15.6
Year	Revenue Tons		Per cent increase or decrease over 1920
	Class I roads	Increase or decrease over 1920	
1920.....	2,213,827,000	.....	.....
1921.....	1,644,807,000	-569,020,000	25.7
1922.....	1,823,026,000	-390,801,000	17.7
1923.....	2,312,200,000	+98,373,000	4.4
1924.....	2,147,374,000	-66,453,000	3.0
Year	Passengers Carried		Per cent increase or decrease over 1920
	Class I roads	Increase or decrease over 1920	
1920.....	1,232,846,000	.....	.....
1921.....	1,034,161,000	-198,685,000	16.1
1922.....	966,489,000	-266,357,000	21.6
1923.....	985,908,000	-246,938,000	20.0
1924.....	931,348,000	-301,498,000	24.5

been less than it was in that year, and in every year since 1920 the number of passengers carried has been less than it was in that year.

It has been generally believed that these trends of freight and passenger business, especially of the latter, have been unprecedented, not only within the last quarter century, but in the entire history of our railroads. The failure of freight business to increase as it did for so many years, and the very large decline of passenger business usually have been attributed mainly to influences which have become operative only within recent years.

Some recent study of the statistics of the Interstate Commerce Commission has, however, disclosed that the trend of traffic within the last five years has not been entirely unprecedented, but that there is a very interesting and perhaps significant parallel between the traffic statistics of the railways for the years immediately following the panic of 1893 and the years since 1920. In

a table published herewith are given in parallel columns statistics showing the number of revenue tons and passengers carried by the railways in 1893 and the years immediately following, and in 1920 and the years since. Those for the former period are for all roads and those for the latter period only for Class I roads, but this does not substantially affect their comparability.

The statistics show that the decline of freight traffic in 1921 was relatively much larger than that which occurred in 1894. They show that in 1895, as in 1922, there began a recovery of freight business, and that in 1896 it was larger than in 1893, as in 1923 it was larger than in 1920. They show that in 1897 there was a decline of freight business which made it again less than in 1893, and that in 1924 there was a corresponding decline which made it less than in 1920. In 1898, five years after the panic of 1893, there was an increase of freight business that made it 16 per cent larger than in 1893 and also larger than in 1896. Likewise there is going on in 1925 an increase of freight business that undoubtedly will make it larger for the year than it was in 1920 or 1923.

Equally interesting are the comparative statistics of passengers carried. It will surprise many persons to learn that after the panic of 1893 the number of passengers carried by the railways showed a reduction for seven consecutive years, the figure for 1893 never being surpassed until 1901. The heavy losses of passenger business since 1920 have been attributed mainly to the competition of automobiles. The loss of passengers carried since 1920 has varied from 16 per cent in 1921 to 24½ per cent in 1924. The losses following the panic of 1893 varied from about 9 per cent in 1894 to 17½ per cent in 1897, and at that time, of course, there were no automobiles to the competition of which they could be attributed.

The percentages of increase and decrease in traffic in the two periods are different, but the trends in the two periods parallel each other in a remarkable way. In several important respects conditions since 1920 have been very different from what they were following the panic of 1893. In the five years following that panic the railroad mileage of the country increased about 10,000 miles. On the other hand, since four years prior to 1920 it has been decreasing. Thirty years ago immigration was unrestricted, while now it is severely restricted. Then there were no motor vehicles while now there are millions of them. Are these changes in conditions facts of the greatest significance; or is the most significant fact of all the fact that in spite of these changes in conditions the trends of traffic in the two periods have been similar?

Is there any important reason why the trends in these two periods should be unlike the trend in any intervening period and yet similar to each other? There apparently is one, and this is that the shocks given to, and the dislocations caused in, the country's business and its price levels by the panic of 1893, and by the war, the inflation of 1920 and the deflation of 1921 were much more severe than the shocks and dislocations caused by anything that occurred between these periods.

Five years after the panic of 1893 the year 1898 began a period in which railway freight business in each year exceeded all previous records until and including 1907. Eight years after the panic of 1893 the year 1901 began a period in which the number of passengers carried by the railways in each year exceeded all previous records until and including 1914. Whether the similarity between the trends of traffic in the five years following the panic of 1893 and in the five years since

1920 indicates that in future the trend of traffic will be similar to what it was after the panic of 1893 we leave to each reader to conjecture for himself.

## Train Orders and Train Stops

**T**HE elimination of train stops is becoming more important on account of the increased train loadings and the frequency of trains, especially on roads where the track capacity is limited. The delay and the waste of fuel and damage to equipment occasioned by stopping and starting have been among the most important factors influencing the adoption of the non-signature "19" form of train order in preference to the "31" form which requires the stopping of the train to secure signatures.

Many interesting facts as to the comparative advantages of the two types of orders were brought out in the papers submitted in the contest on, "The Use of the '19' Order", conducted by the *Railway Age*.

However, the most convincing data as to the economies accomplished by the "19" order are those relative to the cost of stopping and starting trains. Many estimates and calculations have been made as to the cost of stopping trains, but the Illinois Central has made extensive tests with interesting results as related in the paper by H. G. Duckwitz published elsewhere in this issue. From tests made with the assistance of a dynamometer test car, the following estimates of costs to stop and start a train on level track were determined. The time lost and resultant expense cover the period from the time the locomotive shuts off steam to stop to the point where permissible speed is again resumed, ordinarily 25 miles per hour for freight trains and 50 miles per hour for passenger trains. An eleven car passenger train handled by a modern Pacific type locomotive lost six minutes, costing \$0.74 for the stop. A 52 car freight train, of about 2,500 tons hauled by a Mikado type engine, lost 15 min. at a cost of \$1.60. A 75 car freight train with 3,750 tons, hauled by a Mikado type engine, lost 25 min. at a cost of \$2.77. A 100 car freight train of about 5,000 tons, hauled by a 2-10-2 type engine, lost 30 min. at a cost of \$3.83, and when on overtime a charge of \$2.57 was added, totaling \$6.39 as the cost of the train stop.

In an article by W. T. Quirk published in the *Railway Age* of August 22, 1925, the author states that, "On mountain territory such as the Santa Fe Coast Lines, it is safe to estimate a loss of 15 to 20 min. in time and a cost of \$5 per stop. For example, one day not long ago we had 10 freight trains eastward, each consisting of 55 loads, over a district of 141 miles in length, each of which required three 2-10-2 locomotives to handle up the mountain, 50 miles straightaway. On this portion, however, the '19' form is used, but if the '31' form had been used I estimate it would have required at least three additional stops for each train with a loss of at least one hour in time and at a cost of not less than \$10 for each stop, or \$30 per train—a total for one day's business in one direction on one district of ten hours in time and \$300 in money. Figure it out for yourself on your own territory; even the lowest of the figures obtained by the Illinois Central with a Mikado type locomotive on level track will prove that the railroads of the United States are losing hundreds of thousands of dollars annually by their failure to adopt the '19' form of train order exclusively."

These remarks are very effectively put and lead to the question "why stop trains for train orders at all?" Why not direct train movements by signals without written train orders and operate passing track switches by remote control switch machines?

## Should Portland Cement Be Improved?

**D**EVELOPMENT in the art of making concrete has proceeded along lines which present a marked contrast to those prevailing in the fields of other materials used in industry and construction. This is the result of conditions which are peculiar to the manufacture of this material. Whereas practically all other materials are delivered by the manufacturer in such condition that the work done on them by the user in no way affects their intrinsic nature, concrete is subjected to a double process of manufacture, one part being carried on by the cement and aggregate industries, and the other by the builder who proportions, mixes and places the combined materials in the structure. The first stage in this process, particularly with respect to cement, is carried out under a high degree of standardization. The second is subject to an almost infinite variety of conditions and methods.

In the early days of concrete construction there was also considerable variation in the quality of the cement and it became the custom to ascribe unsatisfactory quality of the concrete to inferiority of the cement. Whether or not this indictment was justified in many instances it gave rise to concerted studies of the properties of cement and its process of manufacture, leading eventually to a high degree of standardization under specifications which have universal acceptance.

While the improvement of cement has been a source of great advantage to the concrete builder it has served to eliminate only one variable. The great sources of irregularity to be found in the quality of the aggregates and the conditions under which the concrete is made continue to introduce great variations in the quality of the finished work. For this reason efforts during the last 10 or 15 years have been concentrated on the more careful selection of the ingredients other than the cement and on more scientific control of the proportioning, mixing and placing of the concrete to the exclusion of much consideration of the quality of the cement. Conforming as it does to certain minimum requirements, it is probably safe to say that the cement purchased under the standard specifications is not often a contributing cause to defective concrete, at least in structures designed to meet ordinary atmospheric or climatic conditions.

For this reason the manufacturers and users alike have been little inclined to advocate changes or improvements in the quality of Portland cement. The manufacturers in particular, having made enormous investments in plants designed for quantity production of a product of fixed quality, are naturally reluctant to consider changes that would require drastic modifications in plant equipment. However, during the last few years certain evidence points to a change of attitude towards cement. Some engineers are asking whether one grade of cement is necessarily the best material to use under all conditions. It has been asked in particular whether a change in the properties would not afford a better material for such uses as concrete in sea water. Others have raised question as to the fineness of grinding, and a recently issued report of tests by the United States Bureau of Standards, while not entirely conclusive, points to the higher strengths to be obtained with finer ground cement. The most tangible development is a quick setting cement, for which railway construction offers a definite field of usefulness, but owing to the high cost of an essential raw material in this product its use will necessarily be limited to applications justifying the greater expense.

But even where the cost of raw materials is not a vital

factor it is certain that the manufacture of any special cement will entail costs considerably above that for the standard product, which raises the question as to whether, under present conditions, concrete builders would be justified in using more expensive cement. It would appear that as long as variations obtain in the making of concrete which introduce corresponding variations in the strength of the resulting structures that represent many times the difference in strength to be effected by a reasonable increase in the quality of the cement, the present need is primarily that of so improving the models used in the field so that more uniform results are obtained with the material now used.

## Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

### Books and Pamphlets

*Agriculture Yearbook 1924*, compiled by U. S. Dept. of Agriculture. Especially the review of the year in agriculture, p. 1-96, and the sections on highway transport, p. 97-184, also "Weather and the Railroads," p. 534-539. 1252 p. Pub. by Govt. Print. Off., Washington, D. C. \$1.50.

*Elimination of Railroad Grade Crossings—a Selected Bibliography*, by Dagny Borge. Emphasizes legal requirements. 45 p. Issued by Library School, University of Wisconsin, Madison, Wisc.

*Investments in Latin America, I. Argentine*, by Frederic M. Halsey and G. Butler Sherwell. U. S. Dept. of Comm. Trade Information Bull. No. 362 For railroads see section on foreign investments in Argentine. p. 2-4, and "Railway Development" p. 28-51. 85 p. Pub. by Govt. Print. Off., Washington, D. C. 10 cents.

*The Seasoning and Preservation of Timber*, by Ernest G. Blake. Discusses growth and structure of timber, causes of decay, methods of preservation, treating plants, etc. 144 p. illus. Pub. by D. VanNostrand Co., New York City. \$3.50.

### Periodical Articles

*Extension to Lake Louise Hotel*, by H. S. Bare. Accomplishments of C. P. R. hotel construction department under winter conditions. *Engineering Journal* [Canada], Sept., 1925, p. 377-378.

*Government and the Theory of Competition*, by D. E. Montgomery. "This paper approaches the problem from the standpoint of a government commission required by law to discover and enforce rules of fair competition suited to modern conditions." p. 440. *American Economic Review*, Sept., 1925, p. 440-452.

*How Investors Have Fared with the Railroads*, by William L. Raymond. Railroad history from investors' point of view. *Barron's*, Sept. 7, 1925, p. 3, 8.

*Talk of a Museum of Traffic and the Romance of the Most Civilizing of All Arts*, by H. I. Brock. In his "The World of Art." Mentions types of vehicles, old railroad motive-power and equipment and other things in the traffic past that are or should be preserved in a public museum. Illustrated. *New York Times Magazine*, Aug. 23, 1925, p. 18-19.

*What the Northwestern Roads Would Earn if Freight Rates Were Increased*, by J. A. Pollock, Jr. Surveys conditions affecting railroad earnings in Northwestern states. *Magazine of Wall Street*, Aug. 29, 1925, p. 812-813, 850-851.

## Letters to the Editor

[The RAILWAY AGE welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]

## The Life of Ties

CLEVELAND, Ohio.

### TO THE EDITOR:

I have read with interest in the *Railway Age* of August 29, page 387, Z. M. Briggs' discussion of my article entitled "What is the Average Life of Ties" which was published in the *Railway Age* of August 15. His explanation of the method of construction of my table and curves of failure for railroad cross ties is correct, but he is mistaken when he says that "the number of possible solutions is indefinite if not infinite especially if the figures are not restricted to integers." The possible solutions are very definitely restricted to integers since we are dealing with whole rather than fractions of ties and with whole rather than fractions of years.

In his example all he did was to assume the axis at 55 per cent whereas I used 58 per cent for ties having an average life from the eighth to twelfth year inclusive and 57 per cent for those with an average life from the thirteenth to thirtieth years inclusive. Pearson's curve, presented by Miss Thorne, is based on 60 per cent. I found by trial that the axes which I assumed are the nearest correct.

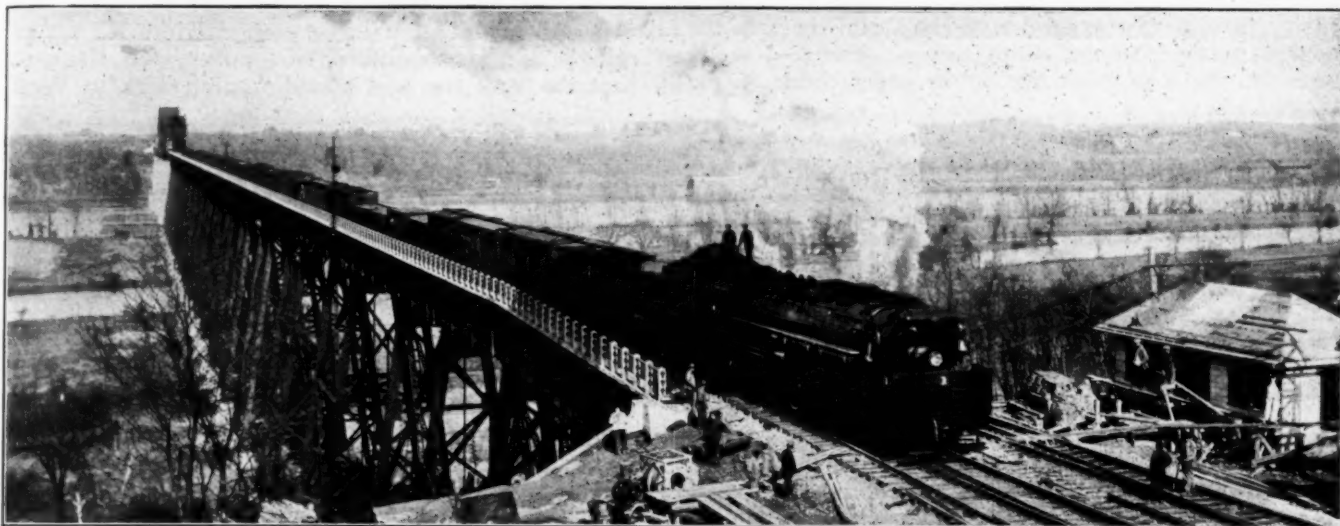
As we are restricted to integers (whole ties) we have only six assumptions at most to choose from, namely, 55, 56, 57, 58, 59 and 60 per cent, for the axes. Less than 55 per cent or more than 60 per cent would be practically impossible. He has given only one example of distribution and that is for an eight year average with axis at 55 per cent. I suggest that he try that axis on the entire table and I think he will discover that in places too low a percentage of ties in the first period and too high a percentage in the second period. This will become more and more apparent as the "average year" increases from 8 to 30 years. By using 60 per cent as the axis, the difficulty is in the other direction.

As the ascending and descending series of tie removals is created by the distribution of the tie years, to make the sum of tie years for each average year, he will have the same order whether he uses 55, 56, 57, 58, 59 or 60 per cent as the axis, which is the percentage of removals or failed ties of any group at the time of average life.

W. F. GOLTRA,

President, W. F. Goltra Tie Company.

IN PENNSYLVANIA DINING CARS the name of each waiter is to be shown on the bills-of-fare which are placed on the tables which he attends. The railroad company announces that this practice has been decided on as another step toward the ultimate consummation of its plan to establish more direct, cordial and pleasant relations between patrons and employees. It is thought that the waiters will take greater pride in their work and be made to feel a greater sense of individual responsibility, thus adding to the pleasure and satisfaction of the patrons whom they serve. To know their waiter by name should have a decided tendency to make patrons feel more at home.



B. & A. Locomotive No. 1 Leaving the Selkirk Bridge

## Tests of 2-8-4 Locomotive on B. & A.

*Lima built engine of new type develops high horsepower capacity and high fuel economy*

By F. A. Butler

Superintendent Motive Power and Rolling Stock, Boston & Albany

ON page 1077 of the May 2 issue of the *Railway Age* there appeared a description of the new 2-8-4 type locomotive which was built by the Lima Locomotive Works, Inc., and placed in service on the Boston & Albany in February, 1925. In this article mention was made of the fact that the locomotive was undergoing tests in service, from which data would later be available. This article contains a summary of the results obtained in those tests.

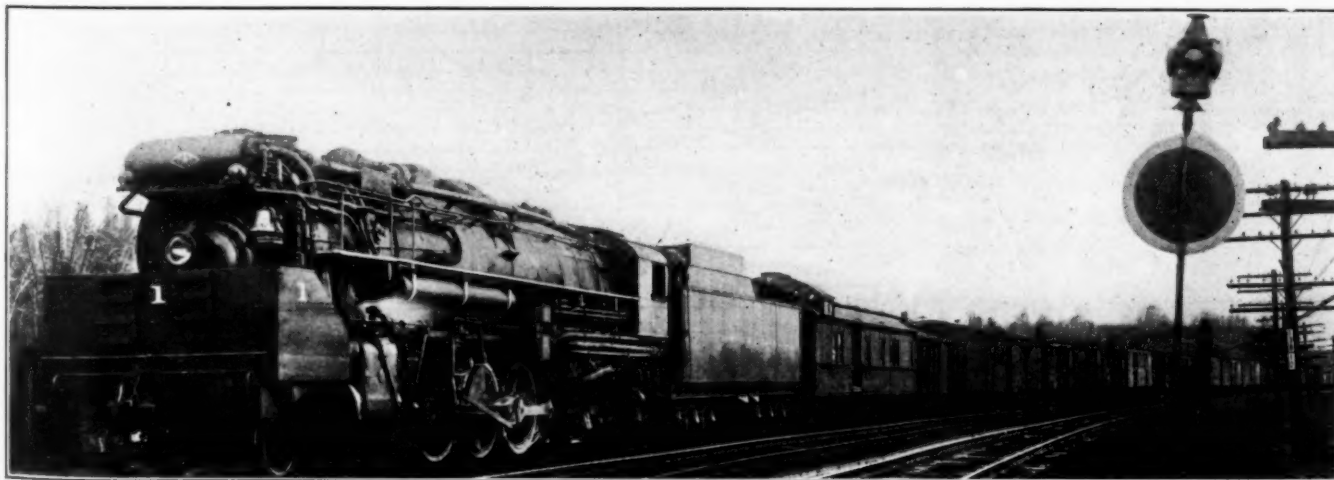
This locomotive, which was designated as No. 1, was received at the Boston & Albany enginehouse at Selkirk, N. Y., on February 18, 1925. Two days later it was placed in regular freight service on the Albany division of that road and after a short period in regular freight

service, test apparatus was applied at the West Springfield shops. The first test trip with the dynamometer car was run on March 28, 1925.

### Test Equipment

The test equipment included New York Central dynamometer car No. X-8006. Indicators were placed on the cylinders of the locomotive and gage glasses were applied to the corners of the tank to measure the water. The tank was calibrated by weighing water in a barrel mounted on platform scales on top of the tank. A slope bottom coal box mounted on platform scales was applied to the tender for measuring coal.

Steam gages were applied at the dome, to the satur-



The Locomotive and a Test Train on the Albany Division of the Boston & Albany

ated side of the superheater header, to the superheated side of the superheater header, to the steam chest, to the exhaust passage, to the steam space of the feed water heater, to the feed water line at the boiler check, to the

### Operating Conditions

The Albany division is between Selkirk, N. Y., and Springfield, Mass., a distance of approximately 100 miles. The tests were run east bound from Selkirk to Wash-

### BOILER PERFORMANCE

Test number	Duration of test hrs.	Dry coal per hr.	Dry coal per sq. ft. grate per hr.	Equivalent evap. per hr.	Equivalent evap. per lb. dry coal per hr.	Degree superheat at steam chest	Boiler eff.	Temp. steam in superheater header	Smokebox temp.	Draft front of diaphragm	Draft back of diaphragm	Draft firebox	Pressure at dome	Pressure at steam chest
25-51-10	3.48	5,427	54.27	57,171	10.534	205	72.75	652	569	5.22	3.46	0.67	227	208
25-51-12	3.22	4,871	48.71	54,273	11.140	194	78.49	650	571	5.43	3.58	0.76	224	209
25-51-14	3.33	4,112	41.12	49,203	11.966	190	83.63	637	543	3.90	2.61	0.70	227	195
25-51-16	3.13	4,730	47.30	53,729	11.360	195	81.66	639	556	4.44	3.24	0.83	226	202
25-51-18	2.82	4,957	49.57	61,729	12.452	216	89.51	660	577	4.63	3.24	0.78	224	204
25-51-20	2.87	5,420	54.20	65,343	12.034	213	87.84	663	562	5.30	4.05	0.90	231	211
25-51-22	2.95	6,423	64.23	69,320	10.790	236	75.25	672	599	6.70	4.83	1.04	231	211
25-51-24	2.83	5,597	55.97	63,111	11.277	220	77.86	665	585	5.15	3.42	0.69	224	203
25-51-26	3.46	5,856	58.56	63,333	10.816	210	77.60	659	582	5.59	3.82	0.69	216	201
Average	3.12	5,266	52.66	60,690	11.370	209	80.5	655	571	5.15	3.49	0.78	225	205

steam line to and to the exhaust line from the booster.

Thermometers were applied to both steam pipes close to the steam chest and to the exhaust passage on the left side. Thermometers were also applied in the tender

ington, which is at the top of the grade, a distance of 60 miles. A condensed profile of the line is included which also contains certain operating data as well as the profile. The Albany division has many curves, but

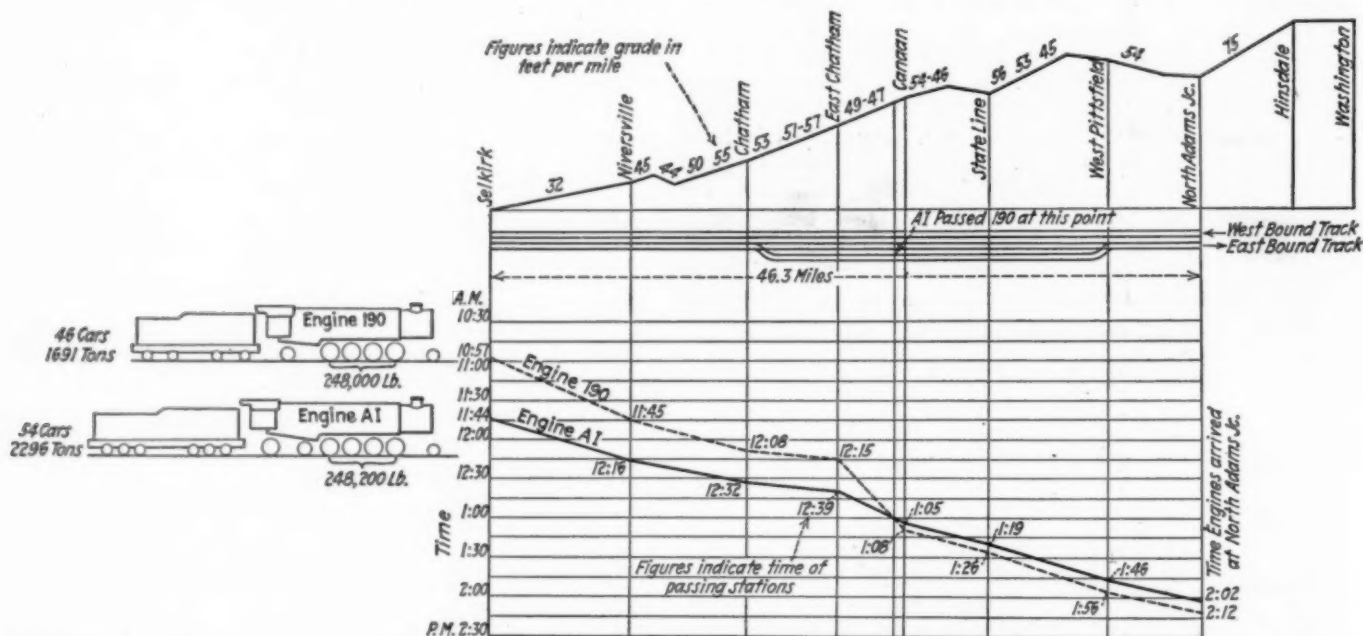
### ENGINE PERFORMANCE

Test number	Ave. working speed	Ave. cut-off, per cent stroke	Ave. I. hp.	Dry coal per I. hp. inc. auxil.	Dry coal per I. hp. exc. auxil.	Steam per I. hp. inc. auxil.	Steam per I. hp. exc. auxil.	Ave. drawbar pull	Ave. dynamometer hp.	Dry coal per d. hp. inc. aux.	Dry coal per d. hp. exc. aux.	Steam per d. hp. inc. aux.	Steam per d. hp. exc. aux.	Machine eff. of loco-	Thermal eff. of locomotive
25-51-10	13.25	46.0	1,795.5	3.02	2.67	23.46	20.58	35,350	1,399.7	3.88	3.41	30.10	26.41	82.4	4.67
25-51-12	15.76	41.5	1,835.4	2.66	2.36	21.87	19.41	31,150	1,310.8	3.71	3.30	30.64	27.18	79.7	4.98
25-51-14	14.42	35.2	1,706.0	2.68	2.37	21.42	18.60	29,500	1,179.1	3.49	3.03	30.99	26.90	77.4	5.07
25-51-16	15.63	41.0	1,763.5	2.68	2.37	22.64	19.94	32,450	1,354.2	3.50	3.08	29.48	25.97	79.7	5.39
25-51-18	18.18	39.5	1,826.9	2.71	2.34	24.91	21.55	31,216	1,515.2	3.27	2.83	30.04	25.98	82.9	5.77
25-51-20	17.62	45.0	2,007.1	2.71	2.41	23.98	21.38	36,000	1,693.6	3.20	2.86	28.41	25.33	83.2	5.99
25-51-22	16.84	48.5	2,367.8	2.72	2.41	21.47	19.09	38,067	1,711.6	3.75	3.34	29.70	26.40	80.6	4.88
25-51-24	18.03	43.0	2,077.3	2.69	2.42	22.38	20.06	33,300	1,603.1	3.49	3.13	29.00	25.99	79.2	5.19
25-51-26	14.79	54.0	1,934.9	3.03	2.62	24.12	20.85	39,650	1,565.8	3.74	3.23	29.80	25.76	83.4	5.03
Average	16.16	43.7	1,923.7	2.76	2.44	22.92	20.16	34,076	1,481.4	3.56	3.13	29.72	26.21	80.2	5.22

tank, in the water line to the feedwater heater, in the water line from the feedwater heater, in the exhaust steam line to the feedwater heater and in the condensate line from the feedwater heater. Pyrometers were applied

no attempt has been made to show these on the condensed profile.

Under normal conditions the volume of freight and passenger traffic closely approaches the capacity of the



Profile of the Test Portion of the Albany Division, Showing the Comparative Test Run of Locomotive No. 1 and a Mikado Locomotive

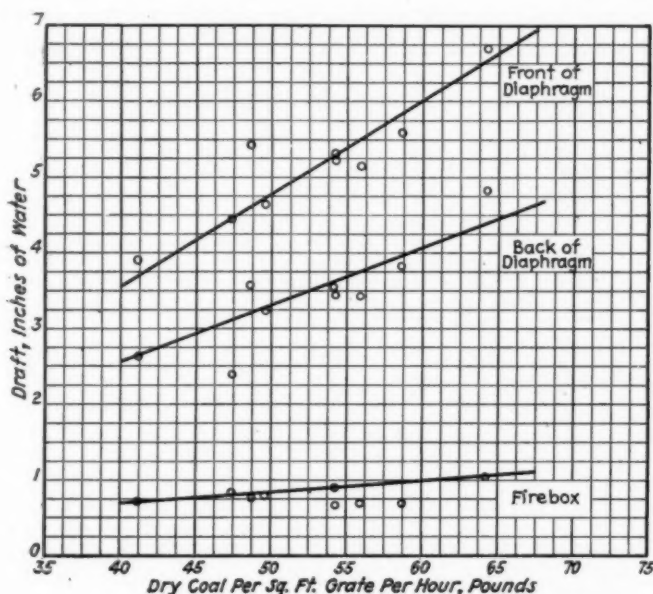
to the superheated side of the superheater header and in the smoke box.

Provision was made to read the draft in the firebox, in front of and in back of the diaphragm.

track. Therefore, any increase which can be effected in the size of the train unit and the speed of operation relieves this condition.

Nine reliable tests were made between March 28 and

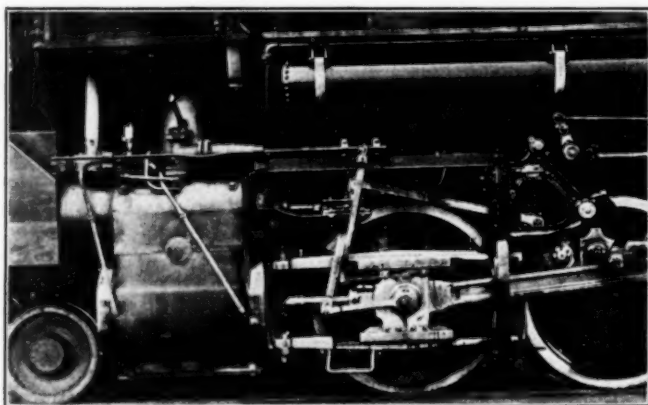
April 18. During this period the weather conditions were variable and at times the condition of the rail was poor, as light snows were encountered. The average atmospheric temperature for one complete test was 43 deg. F. The tests were run under normal operating



Variation of the Coal Rate in Relation to the Draft

conditions and the results, therefore, reflect the performance of the locomotive in regular service.

All figures are given as average over the test division including the effect of all variations of power output, from the maximum to the minimum which go to make up the average, and hence are valuable as data which can



The Indicator Equipment

be used to make comparisons and predictions in regular train operation. For this reason no attempt was made to correct for grades and curves where these factors might enter into the final results.

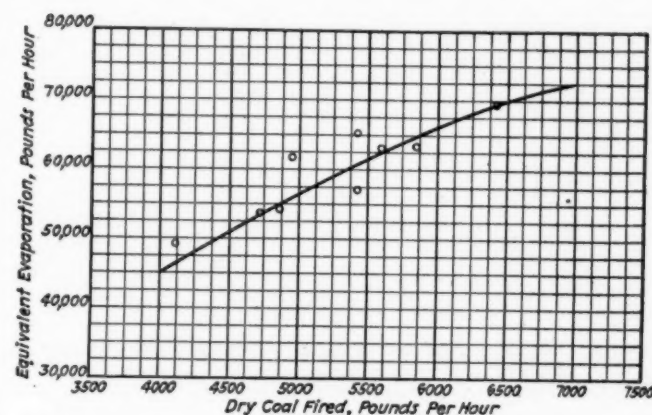
#### Average Boiler and Engine Performance

The efficiency of the steam generating plant ran from 72.75 per cent to 89.51 per cent, the average of all runs being 80.5 per cent. The relation between coal rate and efficiency is shown in one of the diagrams. This high average was the direct result of the large grate area and firebox and the boiler equipment. The large grate area gave an average coal rate per square foot per hour of 52.66 lb. for all runs. The large firebox and the Type E superheater which permitted a maximum gas area through

the tubes and flues, together with the feedwater heater produced an average evaporation of 8.13 lb. of water per lb. of coal as fired. The equivalent evaporation per lb. of dry coal was 11.37 lb., average.

The smoke box temperatures clearly reflect the ability of the firebox and boiler to absorb heat. These figures ran from 543 deg. F. to 599 deg. F., the average being 571 deg. F.

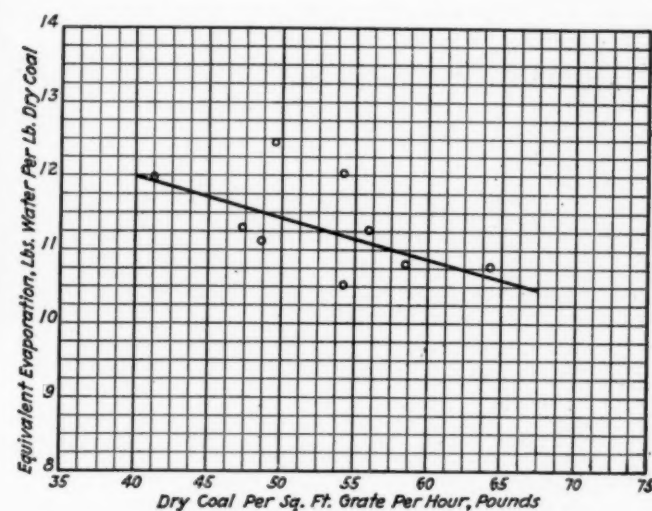
The boiler pressure of 240 lb. per sq. in. and the limited cut-off enabled this engine to produce an average of 1923.7 indicated horsepower with an average cut-off over the test division of 43.7 per cent. This resulted in an average water rate per indicated horsepower-hour of 20.16 lb. The coal per indicated horsepower-hour was 2.44 lb., average, with a maximum of 2.67 lb. and a



The Relation Between Boiler Output and Coal Consumption

minimum of 2.34 lb. The maximum cylinder horsepower recorded was 3,675.

The dry coal per dynamometer horsepower-hour averaged 3.13 lb., with a maximum of 3.41 lb. and a minimum of 2.83 lb. The maximum drawbar pull was 76,800 lb.,



The Relation Between the Coal Rate and the Rate of Evaporation

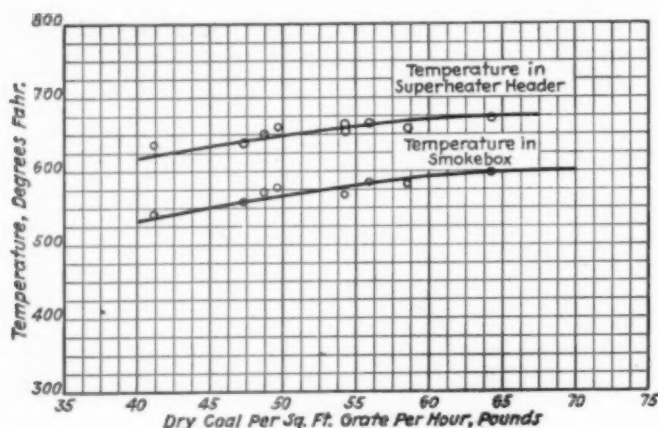
of which the booster produced 11,800 lb. The maximum sustained drawbar horsepower recorded was 3,240.

#### The Locomotive as an Operating Unit

Reference was made in a previous paragraph of this article to the severe operating conditions on this division due to the great number of trains to be moved and the relief it is possible to obtain by increasing the size of

the train unit and the speed of operation. To effect this requires an increase in gross ton-miles per hour per locomotive, which in turn means a corresponding increase in dynamometer horsepower per locomotive.

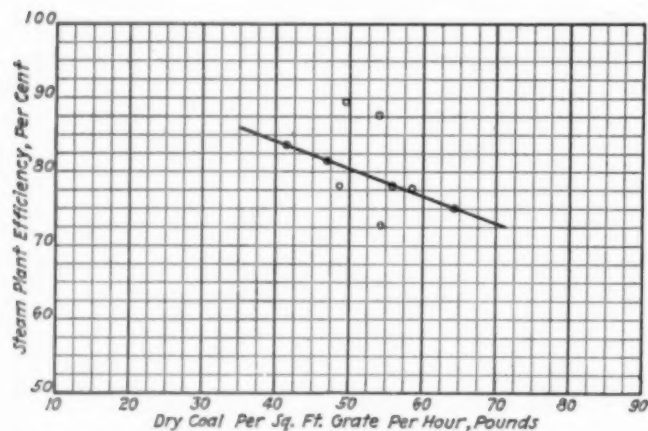
Probably the clearest comparison in this regard between the 2-8-4 type engine and the Mikado type now used on the Albany division (the principal dimensions of which were compared with those of the 2-8-4 locomotive in the description of the latter in the May 2 issue of the *Railway Age*), was the test run of April 14, 1925.



Relation Between the Coal Rate and Superheater and Smokebox Temperatures

This comparison is shown in the diagram below the drawing of the profile of the division.

On this day Mikado engine No. 190 started from Selkirk with a manifest train of 46 cars, 1,691 tons, 47 minutes ahead of the 2-8-4 type class A-1 which had 54 cars, 2,296 tons. Both trains ran without delays, the A-1 overtaking the No. 190 at the point shown on the diagram. At Chatham, No. 190 took the outside track so that at the time of passing the two trains were running



The Efficiency of Steam Generation in Relation to the Coal Rate

side by side on parallel tracks under exactly the same conditions. Between East Chatham and Canaan is a difficult part of the line, with many curves and a heavy grade, the severity of this part of the line in comparison with other sections having similar average grade conditions not being adequately shown by the condensed profile.

This run may be taken as a fair comparison of the relative ability of the two engines to move freight over the line. The uniform speed of the 2-8-4 type loco-

motive over the test division is noteworthy as indicated by the uniform slope of the time curve.

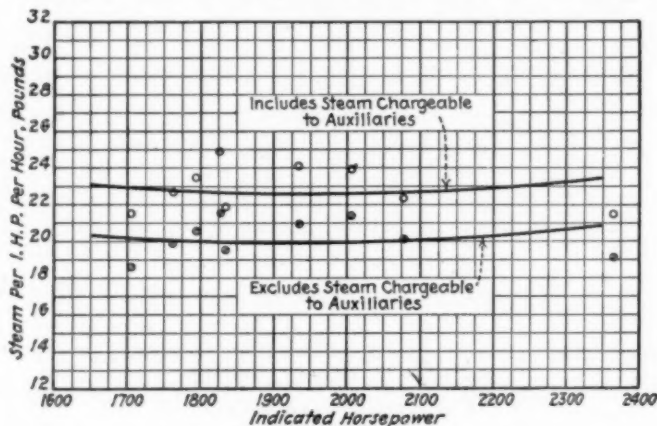
The following data compiled from the test result of the two locomotives is a comparison on the basis of gross ton-miles and fuel.

AVERAGE DYNAMOMETER HORSEPOWER, WHICH IS PROPORTIONAL TO GROSS TON-MILES PER HOUR			
Average lb. dry coal fired per hour	A-1	Mikado	Per cent increase A-1 over Mikado
4,000	1,200	†	...
4,500	1,350	†	...
5,000	1,480	1,200	23.5
5,500	1,600	1,250	28
6,000	1,750	1,320	33
6,500	*	1,420	...
7,000	*	1,550	...
7,200	*	1,650	...

\*The A-1 never reached these rates of firing.

†The Mikado never ran at as low rates as these during the tests.

Further details of the test data are shown in the tables of engine and boiler performance. Charts showing a

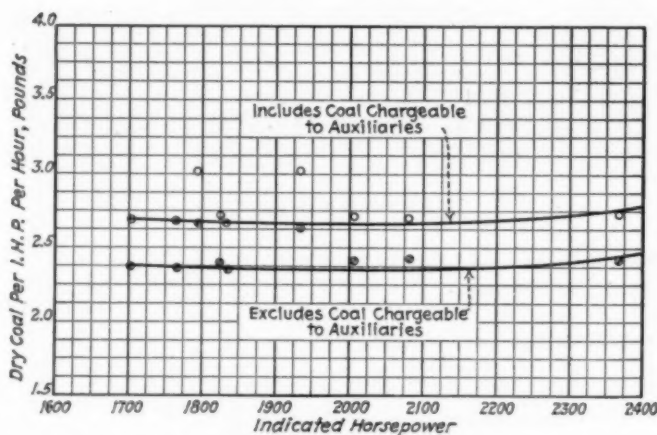


Steam Consumption in Relation to Indicated Horsepower Output

number of pertinent relationships with respect to the coal rate per sq. ft. of grate per hour, the coal and steam consumption rates and the thermal efficiency, calculated from this data, are also presented.

#### Performance of the New Features of Construction

Many new features of construction were incorporated into the design of the Class A-1 locomotive. As these

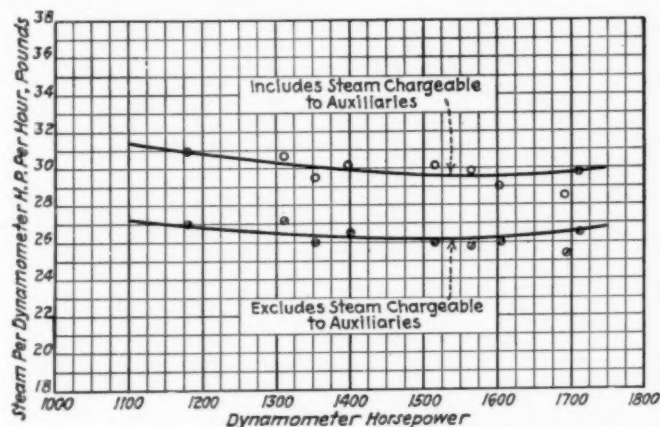


Dry Coal Consumption Per Indicated Horsepower

are vital elements in the economic performance of the engine, their operation was noted with special care to determine their adaptability and usefulness under service condition. The principal new features, which were described in detail in the May 2 issue of the *Railway Age*, are the compensated limited cut-off in the cylinders, the

cast steel cylinders, the articulated main rod drive, the articulated trailing truck and the large grate area.

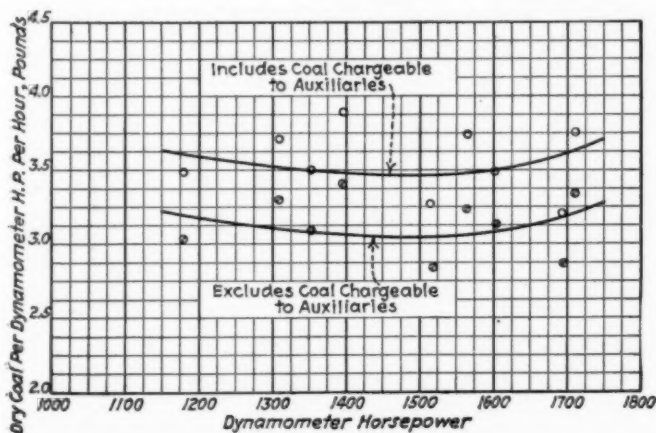
Trials were run to determine the best point of cut-off consistent with prompt starting under the worst conditions of rail, grade and position of the cranks. It was found that 60 per cent maximum cut-off best met this condition. With this cut-off an indicated tractive force of 69,400 lb. was obtained at slow speeds. The indicator



Steam Consumption in Relation to Dynamometer Horsepower Output

cards gave a very even turning moment with the result that with this tractive force, giving a factor of adhesion of 3.58, there was no more tendency to slip than there would be with a full stroke cut-off engine, having the same driving wheel load and developing 63,500 lb. tractive force. Prompt starting was secured under all conditions.

With respect to the cylinders, the only comment which can be made after a limited time of operation of about three months is that the cylinders showed no signs of



How the Rate of Coal Consumption Varied with the Dynamometer Horsepower Output

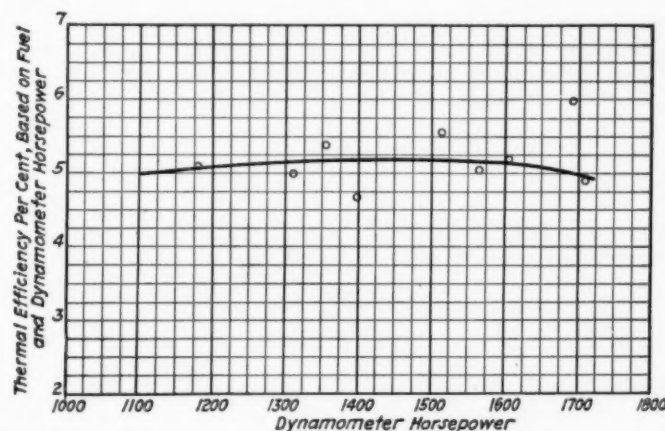
weakness and that all the joints of the exhaust passages remained tight. In fact these joints were never touched.

No trouble was developed with the new type of rod drive, the same bearings with which the rods were first equipped remaining in place throughout the test. No hot pins or main boxes trouble developed, although with 240 lb. pressure the piston thrust is 148,000 lb. Measurements of the wear on the main and rear boxes were made to determine whether the piston thrust was being distributed by the rod drive over two pairs of boxes. These measurements showed almost exactly the same horizontal

wear in the back as in the main brass thus indicating the correctness of the theory that this rod drive distributes the thrust over two pairs of wheels. Final confirmation of this, however, can only be obtained after more extended service.

No trouble of any kind was experienced with the tracking or operation of the articulated trailing truck and it seemed to adapt itself very well to the track conditions. The engine rode steadily up to the highest operating speeds which the service required. Particular comment is made upon the large ash pan and the ease with which it can be dumped. The accessibility of the booster and stoker is also worthy of note from a repair and maintenance standpoint.

Observations were made to determine if under condi-



The Thermal Efficiency at the Drawbar

tions of very light work proper combustion would be supported over the large grate area. No trouble from this cause was experienced and rates of firing as low as an average of 41 lb. of coal per sq. ft. of grate per hour over the test division were recorded.

## President Favors Voluntary Consolidations

WASHINGTON, D. C.

THE numerous press despatches from Swampscott recently, asserting President Coolidge's eagerness for railroad consolidation, and regarding his conference on September 2 with Senator Watson of Indiana, chairman of the Senate committee on interstate commerce, have left something to be desired from the point of view of those especially interested in the subject. They indicate that the President may be expected to urge upon the new Congress that meets in December, as he did upon the last Congress without result, legislation to amend the present provisions of the Transportation Act with a view to expediting the consolidation of our railways into larger systems. However, as to the exact character of the legislation to be proposed, and whether the President has in any way changed his ideas on the subject, what he may have actually said to the press correspondents apparently has been considerably overlaid with journalistic interpretation. The dominant idea of the earlier despatches was that the President had been talking about forcing the railroads to consolidate, as a sort of panacea for all the problems of the railroads and even of the farmers, but as it is well known that the railroads are not yet permitted to consolidate even when they want to, and as on the occasions when President Coolidge has expressed his

views explicitly in writing, as in his messages to Congress in 1923 and on December 3, 1924, the President suggested that we first try the experiment of permitting voluntary consolidations and then see what may be done toward exerting pressure on them if they fail to take advantage of the opportunity, it may be that the correspondents have jumped ahead a few years for the idea of "compulsory" consolidation.

This theory is also borne out by the stories published following the President's conference with the press on September 4 in which it is stated that the President is hopeful that there will be a voluntary consolidation of the railroads and that radical legislation for compulsory merging may not be necessary; also that the administration does not desire arbitrary governmental interference in unification of the railroads. This fits much better with what the President said to Congress on December 3 last, that "Those portions of the present law contemplating consolidations are not sufficiently effective in producing expeditious action and need amplification of the authority of the Interstate Commerce Commission, particularly in affording a period for voluntary proposals to the commission and in supplying government pressure to secure action after the expiration of such period." Shortly afterward Senator Cummins introduced a bill for that purpose on which some brief hearings were held which were adjourned with the expectation that they would be resumed later. Senator Cummins' bill did not do away entirely with the idea of the definite plan to be promulgated by the commission and some other objections to it were developed at the hearing but Representative Winslow later introduced a much simpler bill which would remove the requirement of a plan and would allow voluntary consolidations subject to the approval of the commission, which would also be directed to submit its recommendations as to what ought to be done by the government in the light of the situation developed after a period of five years. Alfred P. Thom, general counsel of the Association of Railway Executives, at the hearing also urged an amendment of the law which would do away with the requirement of a plan but which would give the commission complete control of the consolidations proposed by the railroads through the power to impose conditions.

President Coolidge in his message of last year also indicated his belief that a plan is not necessary when he said: "It does not seem to me necessary that we endeavor to anticipate any final plan or adhere to any artificial or unchangeable project which shall stipulate a fixed number of systems, but rather we ought to approach the problem with such a latitude of action that it can be worked out step by step in accordance with a comprehensive consideration of public interest. Whether the number of ultimate systems shall be more or less seems to me can only be determined by time and actual experience in the development of such consolidations."

As to the importance of the place to be given the subject of consolidation in the administration's railroad program, and as to some of the wholesale benefits to be expected from consolidation, it is likely that much of what has been printed is in the language of the correspondents or of Senator Watson rather than that of the President, although he is known to believe that good results would attend a combination of the lines into a smaller number of strong systems. One correspondent went so far as to represent the President as considering consolidation the only remedy that will prevent the railroads from being put out of business by aerial transportation competition, and that "the great agricultural sections of America must stand or fall upon a reduction of railroad freight rates," to be brought about by consolidations.

Senator Watson was quoted as saying that an attempt

will be made at the next session of Congress to put through a bill which would permit the government to effect consolidations, if, after six or seven years, the roads have not voluntarily consolidated, and that he proposed to consult with Senator Cummins, who has given much closer study to the question of consolidation and other railroad matters than has the new chairman of the committee on interstate commerce. It is probable that further hearings will be held on a consolidation bill and that a good deal of consideration will be given the subject before Congress is asked to pass it.

Both President Coolidge and Senator Watson were represented as desirous of a decision by the Interstate Commerce Commission approving the Van Sweringen Nickel Plate unification and as feeling that this will set an example to be followed by other railroads.

Although real consolidations such as are contemplated by the Transportation Act are still prohibited until the commission publishes its final consolidation plan, and although even the Van Sweringen plan now before the commission does not go to the length of complete consolidation in the present application, the commission has already, in the five years since the law was passed, given its authorization for the acquisition of control of one carrier by another, under paragraph 2 of section 5, in something over 100 cases, involving some 24,000 miles of line, and there are now pending before it some 20 applications for such authority, involving 13,000 or 14,000 miles. Over 9,000 miles are included in the Nickel Plate application, but there are also the applications of the Rock Island for authority to control the St. Louis Southwestern, which the examiner has recommended be denied, of the Norfolk & Western to lease the Virginian, the Illinois Central to acquire the Alabama & Vicksburg and the Vicksburg, Shreveport & Pacific, and of the Chicago & North Western to exchange its stock for that of the Chicago, St. Paul, Minneapolis & Omaha.

While most of the cases already passed upon by the commission which involve the greatest mileage have not meant any real change in control, but have represented rather a closer integration of existing systems, such as by lease of lines already controlled by stock ownership, there have also been a large number of cases involving the acquisition of short line by stronger systems, which is one of the principal objects of the consolidation law, and also considerable progress has been made toward the building up of a system even larger than that proposed by the Van Sweringens in the authorization of joint control of the Denver & Rio Grande Western by the Western Pacific and Missouri Pacific and control by the Missouri Pacific of the Texas & Pacific, Gulf Coast Lines and International-Great Northern.



P. & A.

Reading Changing Course of Schuylkill River at Port Clinton, Pa., to Eliminate Two Bridges and a Tunnel

# Rate Hearing Opened in Chicago

*Testimony of western carriers presented to Chairman  
Clyde B. Aitchison of Commission*

**T**HE hearing before the Interstate Commerce Commission on the application of western carriers for a general increase in freight rates under I. C. C. Docket No. 17,000, Rate Structure Investigation in Ex-Parte 87, Revenues in Western District, was opened at the Edgewater Beach Hotel in Chicago, on September 8. The hearing was confined to the presentation of testimony of the carriers and followed the program drawn up by R. N. Van Doren, vice-president and general counsel of the Chicago & North Western, and chairman of the Law Committee of the western roads.

At the opening of the hearing Chairman Aitchison announced that argument on any point or issue would not be permitted until all of the testimony had been taken and that, with few exceptions, intervening petitions would not be necessary. In the interest of clarity the commissioner directed that the various groups, including carriers, representatives of railway security holders and shippers appoint individual spokesmen to represent them during the hearing. Mr. Aitchison later announced that a co-operative committee of state commissioners would sit with him. On this committee he named Amos A. Betts of the Arizona Railroad Commission, Frank Milhollan of the North Dakota Railroad Commission, and Otto Beck of the Colorado Public Utilities Commission.

Following a few general remarks by Mr. Van Doren on the method of procedure of the carriers in which he asserted that the carriers, with probably a few exceptions, would ask for no more than a general increase of 5 per cent, shippers' organizations demanded a statement of the objective of the carriers. This was given by C. E. Spens, vice-president of the Chicago, Burlington & Quincy, as follows:

"All rates to be advanced horizontally 5 per cent except as follows: Rates into the Missouri river markets; also St. Paul, Minneapolis and Duluth to be advanced 1 cent per 100 lb. Rates from these markets to Chicago, Peoria, St. Louis and points taking the same rates; also to Mississippi Valley, southwest territory and to gulf ports and Rio Grande crossings for export, 1 cent per 100 lb. Rates from west of the Missouri river including Oklahoma to southwest and Mississippi Valley territories; also to gulf ports and Rio Grande crossings, when for export, 2 cents per 100 lb. Through rates made on combinations of local and proportional rates, 2 cents per 100 lb. Should instances develop where this proposed adjustment might result in disruption of any established rate relationship as between markets, existing equalization to be continued by subsequent necessary readjustment.

"Coal, lignite, bituminous, anthracite and semi-anthracite, also coke, 15 cents per ton. Clay, gravel, sand and crushed stone, 7½ cents per ton. Cement, brick, and articles taking the same rate, stone other than crushed, including artificial stone, also lime and plaster, 1 cent per 100 lb.

"Lumber and articles taking the same rate or arbitrary over lumber rates, 2 cents per 100 lb., to destinations in the western group.

"Through rates to and from eastern territory excepting on lumber to be advanced to the extent western lines earnings are advanced, the entire advance to accrue to western carriers excepting that no advance is proposed in class rates between eastern territory and Mississippi river, (Dubuque and south) and Illinois and southern Wisconsin pro-rating territories."

An exception to the rule against intervening petitions was made with respect to a petition in which the Railroad Commission of Arkansas, the Corporation Commission of Oklahoma, and the Railroad Commission of Texas, joined in a suggestion that the Interstate Com-

merce Commission create a new rate group that would embrace certain southwestern states and include railroads serving that territory. The territory as described would include all of Arkansas, most of Kansas, that part of Louisiana now included in the western group or district, the portion of Missouri south of the Missouri river and the states of Oklahoma and Texas. The petition sets forth that the different topography and climate of the southwestern region described created relatively different motive power conditions than those of the other groups; that rates in the southwest were higher now than those of the other groups so that if a general increase of 5 per cent was made the people of the southwest would have to bear the greater burdens.

At the beginning of the hearing an appearance was entered by Archibald Roosevelt and Attorneys William Church Osborn and Grenville Clark, who represent several million dollars in securities of railways of the northwest and committees of shippers who feel the necessity of supporting the northwestern lines. The eastern committees represented by these men include the cities of Boston, Mass., New York, and Hartford, Conn., and the states of Virginia and Georgia, and the western committees include Chicago, Minneapolis, Minn., St. Paul, Seattle, Wash., and Los Angeles, Calif.

Approximately 250 representatives of railroads, state commissions, agricultural associations, and shipping organizations, manufacturing associations, and others, were present at the opening of the hearing. The American Farm Bureau Federation, the Illinois Agricultural Association and the Illinois Manufacturers Association were present, the last being represented by John M. Glenn, secretary, and Colin C. H. Fyffe, attorney.

On the first day, L. E. Wettling, manager of the statistical bureau of the western roads, and Fred W. Sargent, president of the Chicago & North Western, testified. Evidence was presented on the second day by Charles Donnelly, president of the Northern Pacific, W. H. Bremner, receiver of the Minneapolis & St. Louis, and R. H. Aishton, president of the American Railway Association.

## **R. N. Van Doren Outlines Needs of Carriers**

In the opening statement, Mr. Van Doren emphasized the need of immediate relief from the present low level of earnings of carriers and asked that agriculture pay its full share of the western transportation charges. An abstract of his statement follows:

"Further receiverships will be forced upon the western railways unless they have immediate relief from the present low level of their earnings. Important western railway companies are now in the hands of receivers, and other companies will follow unless financial relief is afforded them. The present low level of western freight rates, which is now only 29 per cent higher than in 1911, has been far outstripped by the rising tide of prices, wages and taxes with which we have been and are still confronted, and the western freight rate level is relatively far below that in effect in the other sections of the country.

"The western railways are now asking an increase of but 5 per cent in their freight rates, although an increase of at least 11 per cent would be necessary to yield the roads the fair return to which they are entitled, both by law and by justice. We are asking for but a 5 per cent increase because of the emergency of our necessity. We need additional revenue and we need it now. We have hoped that by asking for only an absolutely essential

minimum we might obtain more promptly and with less opposition this minimum of relief which we must have.

"The western railways have been operated with the strictest economy and with high efficiency. In the one matter of train loading alone, the western lines have produced economies since 1911 which, had they not been effected, would have increased their operating costs nearly half a billion dollars in 1924. The public has had the benefit of these efficiencies and economies. The amount of increased freight revenues which the carriers are now requesting is but a small percentage of the annual savings to the public.

"We shall co-operate with the commission fully with regard to the Interstate Commerce Commission's general investigation of the freight rate structure of the country, now being carried on under the provisions of the Hoch-Smith Bill, and which will be considered, for the western railways, jointly at this time with the petition for increased earnings.

"Whatever may have been the condition of the farmers at the time the Hoch-Smith Resolution was written, whatever depression may have occurred in agriculture, such condition and depression have now been substantially, if not completely, removed, and agriculture is now restored to prosperity. In fact, the actual purchasing power of the western farmer is now greater than in the pre-war days.

"For these reasons, therefore, we ask that agriculture shall pay its full share of the western transportation charges. Substantially 25 per cent of the freight traffic of the western railways consists of agricultural products and live stock. We are performing a valuable and essential service to the western farmer. For this service we are entitled, both in law and in justice, to a fair return, which we are not now receiving. Under the present conditions, we could almost hope for co-operation with, rather than opposition to, our petition for increased earnings."

#### L. E. Wettling Shows Low Revenues and High Operating Expenses Jeopardize Carriers

L. E. Wettling, manager of the Statistical Bureau of the western railroads, presented exhibits showing the relation between revenues and operating expenses and the amounts earned by western carriers as compared with eastern. He showed that the rate of return earned on total investment has decreased since 1916. His testimony in part is as follows:

"Almost one-fifth of the money invested in the western railways failed to receive any financial return in 1924, and the remaining four-fifths of the money invested received a net return which was actually even less than the rate of return earned by the total investment in 1916.

"From December 31, 1916 to December 31, 1924, more than \$1,700,000,000 was invested by the western railways in enlarging and improving their facilities, in building additional track and new stations, and in buying new equipment. Despite this enormous expenditure in the public interest, the net return earned by the western railways in 1924 was \$85,000,000 less than it was in 1916.

"The rate of return earned on total investment was 5.59 per cent in 1916 and was only 3.75 per cent in 1924. The net return earned by the western railways in 1924 was equivalent to a rate of return of but 4.55 per cent on the investment made up to the end of 1916, being lower than the return actually earned on this investment in 1916, and left nothing at all for return on the \$1,700,000,000 which has been invested in the property since that time.

"If the full freight rate increase now requested had been in effect in 1924 the western railways net in that year would still have been less than the net return actually earned in 1916 and would have amounted to a return of 5.56 per cent on the 1916 investment as contrasted with the 5.59 per cent actually earned in 1916. If the increase now requested had been realized in 1924, it would have meant a return to the western railways of only 4.58 per cent on their 1924 investment.

"The Transportation Act of 1920 specifies that railway rates shall be so adjusted as to permit the railways to earn a fair return upon their properties. This fair return has been fixed by the Interstate Commerce Commission at 5¾ per cent annually. The 1924 net returns of \$372,000,000 for the western railways were a fair return upon only \$6,500,000,000, or less than two-thirds of the amount invested in the properties. On the basis of 1924, a five per cent increase in freight revenues would produce a fair return on approximately \$7,900,000,000 leaving over \$2,000,000,000 of western railway investment still receiving nothing at all.

"The statement has been made that only the weak and unimportant roads in the west are in need of increased earnings, and that to increase western rates would result in swollen earnings for the important lines. This statement is absolutely incorrect. In 1923, the latest year for which the Interstate Commerce Commission's statistics for individual roads are now available, those western roads or systems that earned 5 per cent or more upon

their investment represented only 1.5 per cent of the total western railway investment, operated only 1.4 per cent of the total western mileage, and carried only 2.3 per cent of the western freight traffic. This means that in 1923 those western roads or systems that had 98.5 per cent of the total western investment, that operated 98.6 per cent of the western mileage, and upon which the western people are dependent for 97.7 per cent of their freight transportation earned less than 5 per cent. And in 1924, the rate of return earned by the western lines as a whole was even lower than in 1923.

"This unfortunate situation has been brought about by the reductions which have been made in western freight rates since 1920, benefiting the shipper at the expense of the railways. In August, 1920, western freight rates were increased approximately 32 per cent on the average. Immediately after this increase, downward readjustments were commenced which have continued to the present time, augmented by general rate reductions made by the Interstate Commerce Commission in 1922. Freight rates in western territory in 1921 were 2 per cent below the level established in August, 1920. Freight rates in 1922 in the west were 11 per cent lower than after the rate advance in 1920; in 1923, 15 per cent lower, and in 1924, more than 16 per cent lower. This means that railway rates in the west have been reduced approximately \$850,000,000 in the past four years below the level fixed by the Interstate Commerce Commission in 1920 as calculated to yield the railways a fair return. Present rates are now more than 16 per cent below that level, and in the past four years western shippers have been saved an aggregate of \$850,000,000 in freight charges at the expense of the railways and their fair return.

#### Comparative Increases in Rates

"Eastern freight rates in 1924 had increased 76 per cent over 1911, as shown by the average railway receipts for hauling a ton of freight one mile; southern freight rates had increased 37 per cent, while in the same period western freight rates had increased but 29 per cent. On the basis of 1915, the following increases had occurred in 1924: eastern district, 74 per cent; southern district, 48 per cent; western district, 38 per cent. On the basis of 1917, the following increases had occurred in 1924: eastern district, 69 per cent; southern district, 49 per cent; western district, 47 per cent. On the basis of 1919, the following increases had occurred in 1924: eastern district, 23 per cent; southern district, 9 per cent; western district, 10 per cent. That these figures are not affected by disproportionate changes in the average length of haul in the various districts is shown by the fact that in 1924, as compared with 1911, the average haul per ton of freight had increased 14 per cent in the eastern district, 16 per cent in the southern district, and 13 per cent in the western district. The western district, showing the lowest percentage of increase in average haul, is theoretically entitled to the highest percentage of increase in the average receipts per ton-mile.

"This very great discrepancy between the percentages of increase in freight rates received by the eastern lines and by the western lines has resulted in the present low level of western railway earnings, which jeopardizes the continuance and the maintenance of an adequate system of transportation. This is shown by the facts that in the calendar year 1924 only three western roads or systems earned a return of 6 per cent or more upon their property investment; that only three roads or systems in that year earned a rate of return between 5 and 6 per cent, and that the average rate of return for the entire western district in 1924 was but 3.75 per cent on the investment at the end of the year.

"The following table shows for each year the number of western roads or systems earning over 6 per cent; earning from 5 to 6 per cent; from 4 to 5 per cent; from 3 to 4 per cent; from 2 to 3 per cent; from 1 to 2 per cent; from 0 to 1 per cent, and those roads with deficits.

NUMBER OF WESTERN ROADS OR SYSTEMS FALLING WITHIN VARIOUS EARNING CLASSIFICATIONS

Class	1921	1922	1923	1924
Over 6 per cent.....	1	3	7	3
5 to 6 per cent.....	2	3	3	3
4 to 5 per cent.....	7	6	6	11
3 to 4 per cent.....	3	12	10	9
2 to 3 per cent.....	8	7	9	5
1 to 2 per cent.....	6	5	6	8
0 to 1 per cent.....	9	5	5	5
Deficits .....	12	7	3	5
TOTAL.....	48	48	49	49

"The operating ratios for the various districts and the United States as a whole for each of the years from 1921 to 1924, inclusive, are shown below:

District	1921	1922	1923	1924
Eastern .....	84.00	81.23	78.82	77.28
Southern .....	86.12	77.99	77.67	75.49
Western .....	79.81	77.30	76.30	74.89
United States .....	82.61	79.32	77.75	76.14

"It appears that in every year the operating ratio for the western roads was lower than the corresponding ratios in the eastern and southern districts. This is indicative of the economies in operation which have been made by the western railways and the success of these economies in reducing the level of their operating expenses.

### Rates of Return

"The rates of return earned by the various districts upon their total property investment as of the beginning of each year are shown below from 1921 to 1924:

District	1921	1922	1923	1924
Eastern .....	2.85	3.54	4.85	4.53
Southern .....	2.32	4.33	5.02	5.20
Western .....	3.12	3.45	3.96	3.87
United States .....	2.91	3.60	4.48	4.33

"In 1921, the return earned by the western roads was higher than that earned in either the eastern or the southern districts. Since 1921, however, the rate of return earned by the western roads has been lower than that earned by both the eastern and the southern districts. These figures reflect the low relative earnings of the western lines as compared with the railways in the East and South, and show further the effect of the general freight rate reductions made by the Interstate Commerce Commission in 1922, the reductions being materially greater in the West than in the other districts.

"While the western railways have suffered heavy losses because of the failure of their freight rates to keep pace relatively with the rates in the rest of the country, the farmers have profited heavily by the low level of western rates and also by the fact that since 1920, freight rates on farm products have been reduced more drastically than on other commodities. This is shown by the fact that in the eastern district, which has received freight rate increases of 76 per cent since 1911, only 8 per cent of the total tonnage transported represented products of the farm in 1924, while in the western district, which has received freight rate increases of but 29 per cent since 1911, 23 per cent of the total tonnage transported in 1924 represented farm products.

"The relationship in the western district of the freight charges on agricultural products to the value of those products is strikingly illustrated by the fact that from 1921 to 1922 the net value of these products at the farm, as reported by the U. S. Department of Agriculture, (which excludes crops fed to live stock) actually increased \$956,000,000, while the total freight charges on farm products in 1922 were but \$888,000,000. In 1924 the net value of agricultural products had increased \$2,188,000,000 over 1921, while the total 1924 freight on these products was but \$866,000,000.

"The depressed level of western rates has resulted in the following situation: Comparing 1923 with the average results for the 'test period' (three years ended June 30, 1917) the net return earned by the eastern roads had increased \$65,000,000. The net return earned by the southern roads had increased \$39,000,000, while the net return earned by the western roads had decreased \$34,000,000.

"That the western roads are not in even more desperate financial state than they actually are is due solely to the remarkable achievements in economy and efficiency of operation which have been made. The Interstate Commerce Commission has developed statistics showing railway costs per net ton-mile in the 'test period' and in 1923, and has converted the 1923 costs to the 'test period' basis by removing increases caused by higher wage and price levels. The resulting figures, comparing 1923 with the 'test period' on the same basis of prices and wages, show that in the eastern district operating costs per net ton-mile have been reduced 1.2 per cent; in the southern district they have been reduced 8.9 per cent, while in the western district they have been reduced 11.2 per cent. The western district shows the greatest reduction in these equated unit costs, which is a significant tribute to the efficiency and economy of operation of the western railways."

### Fred W. Sargent Shows That Increased

#### Rates Will Produce Greater Prosperity

Fred W. Sargent, president of the Chicago & North Western, was the first executive to testify. He showed that increases in freight rates will immediately increase the purchasing power of those connected with railways, and thereby produce greater prosperity in general. He also stated that western carriers have been furnishing their patrons with the best transportation service that they have ever known. He showed how an increase would permit the railways to stabilize the employment of their men and expand the forces employed in maintenance work, besides allowing the roads to purchase materials and equipment necessary to operate and maintain prop-

erties if the present standard of service is to be continued. An abstract of his testimony is as follows:

"The decreases in rates which were made by the Interstate Commerce Commission are reflected in the experience of the Chicago & North Western:

"On January 1, 1922, the reduction in all grain and grain products averaged 18 per cent. On January 1, 1922, the reduction in live stock rates averaged 10 per cent. On June 19, 1922, the reduction of 10 per cent on iron ore and all classes of traffic not included in the grain and live stock reduction of January 1, 1922. On May 15, 1923, there was an average reduction of 9 cents per ton in iron ore. The result of these reductions in rates during the years 1922 and 1923 applied to the traffic actually moved by the Chicago & North Western in 1923 and 1924 reduced the revenue as follows:

For the year 1923	\$16,059,389
For the year 1924	14,477,314

"Owing to the nature of the traffic, the reductions made during the past three years have had a maximum effect upon the revenues of the Chicago & North Western.

"This loss of revenue has had the following results, viz.:

- (1) It has deprived the stockholders of reasonable dividends. Dividends paid in 1917 were at the rate of 8 per cent on preferred and 7 per cent on common stock amounting to \$11,688,966. Dividends paid in 1924 were at the rate of 7 per cent on preferred and 4 per cent on common stock amounting to 7,373,750.

Decrease \$ 4,315,216

- (2) It has compelled postponement of needed replacements and improvements.
- (3) It has prevented the undertaking of needed improvements which natural progress demands.
- (4) It has compelled reductions in the operating forces beyond the point of reasonable economy and sometimes to the inconvenience of patrons. Stations have been closed, train service has been reduced and maintenance has been curtailed.

"All of these conditions have a direct relation to the prosperity of the communities served and those persons, industries and mercantile activities which depend upon the railroad for an income (such as individuals and institutions whose investments are in railroad stocks and bonds) or which receive the patronage of the railroad or its employees.

"There are six western trunk line territories. Three of these railroads, the Chicago & Alton, the Chicago, Milwaukee & St. Paul and the Minneapolis & St. Louis are now in the hands of receivers; the Chicago Great Western pays no dividends and the remaining two lines, the Chicago & North Western and the Chicago, St. Paul, Minneapolis & Omaha, are on a reduced dividend basis.

"The loss to the Chicago & North Western in 1923 and 1924 by general freight reductions during 1922 and 1923 that were in full force during 1923-1924, are as follows:

Commodity	YEAR 1923		
	Revenue During 1923	Percent of Loss	Amount of Loss
Wheat .....	\$ 2,234,736	15	\$ 335,208
Corn .....	6,005,171	28	1,681,447
Oats .....	3,042,882	28	852,007
Other Grains .....	1,131,185	28	316,732
Flour and Meal .....	854,329	15	128,149
Other Mill Products .....	726,425	28	203,399
Hay and Straw .....	775,366	15	116,290
Cattle and Calves .....	4,048,840	13	526,349
Sheep and Goats .....	499,802	13	64,974
Hogs .....	4,888,371	13	635,488
Total Rate Reduction Jan. 1st, 1922..	\$24,207,000		\$4,860,046

"The effect of the reductions that occurred during the year 1922, so far as the revenue of the Chicago & North Western is concerned, is representative of the effects upon other carriers in western trunk line territory. By such reductions the rates on wheat were reduced 13 per cent; rates on coarse grain reduced 13 per cent with an additional 10 per cent to maintain the differential of 10 per cent between wheat and coarse grain. The effect thereof was to reduce wheat rates 13 per cent, coarse grain 21.7 per cent with a general average reduction on the Chicago & North Western of 18 per cent. This tended to throw the burden of reductions onto the western district. From what I have said it follows that at the close of 1924 the freight rates in the United States were 51 per cent higher than in 1911; in the East they were 76 per cent higher than in 1911; in the South, 36 per cent higher, while in the West they were but 29 per cent higher than in 1911.

"In very general terms there is an investment of \$4 in railway

property for each \$1 of gross revenue earned and a natural margin to yield 53 1/4 per cent on the \$4 investment would be 23 cents. Instead of this yield we find in 1924 the following, viz.:

For the U. S.	16.49 cents
For the western district	16.80 cents
For the northwestern region	14.85 cents

This illustrates forcibly the insufficiency of revenue of these lines as well as of the railroads generally.

"The compensation per hour has increased 138 per cent in 1924, as compared with 1913, and the compensation per annum has increased 115 per cent. It is plain that the expense of operation, so far as labor is concerned, has more than doubled. The efforts of the management to operate their property efficiently is illustrated in a measure by the fact that the hours of service of 1924 are less than the corresponding hours for 1913, although the traffic handled in 1924, measured in combined freight and passenger traffic units, increased 27 per cent above that of 1913.

"The Chicago & North Western has in every year since the end of federal control furnished its service to the public at a return of less than 4 per cent upon its investment, and the experience of the North Western is typical of the western railways. This situation is caused by the great increases which have occurred in the cost of railway operation in fuel, in wages, in taxes, and in practically every other item; by the fact that western railway rates have been kept far below the rising tide of their costs; and by the fact that constant new capital expenditures must be made to meet the growing demands of agriculture and industry and to furnish the people of the West with prompt, adequate and efficient transportation service.

"The western railways have been furnishing their patrons with the best transportation service that they have ever known, but the roads are not being permitted to earn a fair return from this service. This condition has compelled the postponement of needed replacements to the railway property, has prevented the undertaking of additions and extensions to the railway plant which would mean much to the people of the West, has necessitated reductions in the operating forces beyond the point of reasonable economy, and has deprived the railway stockholders of reasonable dividends upon their investments.

"All of these unfortunate conditions have a direct and depressing relation to the prosperity of the communities served by the western railways and of the citizens of these communities, and, further, to the economic welfare of the countless persons, industries and mercantile activities which depend upon the railways for part or all of their income or which receive the business of the railways or of their employees.

"A reasonable increase in freight rates will act in a number of ways to correct this situation. Such an increase will permit the railways to stabilize the employment of their men and to expand the forces employed in maintenance work. It will allow the roads to purchase the materials and the equipment necessary to operate and maintain the properties if the present standard of service is to be continued. It will enable the carriers to participate properly in community enterprise for improvement and expansion; and it will give fair and reasonable dividends to the investors in railway stocks, including the banks, the colleges, the insurance companies and the various other classes of railway stockholders whose welfare is the welfare of the people in general. All this will increase the buying power of the roads, of their employees, of their stockholders, and of all those dependent upon them, thereby producing greater prosperity in general, and enlarging the home market for American production, both agricultural and industrial.

"To cite a specific illustration, in the fiscal year ended June 30, 1925, 193,000,000 bushels of wheat were exported from this country, while in the same year the estimated American under-consumption of wheat was 206,000,000 bushels. This home under-consumption could be materially reduced, with accompanying financial advantage to the American farmers, if the general purchasing power of our working population was raised. The per capita wheat consumption in this country in the fiscal year 1925 was but 4.15 bushels, while in fourteen of the fifteen years immediately preceding this country's entrance into the World War, the average consumption per individual was well over five bushels a year, running, indeed, as high as 6.04 bushels in one year. Present wheat consumption per individual can be raised to the pre-war level, and above, by an increase in purchasing power. A reasonable increase in western freight rates will immediately increase the purchasing power of the western railways, of their employees, of their stockholders, and of all those dependent upon them, thereby producing greater prosperity in general, and enlarging the home market for American agricultural production.

"Finally, a reasonable increase in freight rates will guarantee for the West the maintenance of an adequate system of transportation, a fundamental necessity for individual and national prosperity and welfare. As it is, the continuation of the present adequate transportation service in the west is seriously threatened by the

present low level of western railway earnings, which, in turn, are the result of the depressed level of western freight rates.

"It is evident, therefore, that every factor which may be considered shows at the same time the necessity of and the justification for an increase in the earnings of the western railways."

### Charles Donnelly on Northern Pacific Conditions

Mr. Donnelly compared the returns upon investment since 1920 and stated that the inadequate return was due to low freight rates. His testimony in part is as follows:

"In no year since the passage of the Transportation Act has the Northern Pacific earned a fair return. At the end of 1924 the company's investment in road and equipment, materials and supplies and working capital amounted to \$588,000,000.00. Upon this investment it had a return for the year 1924 of 3.38 per cent. Its return on investment for the four preceding years was 1.44 per cent in 1920, 1.93 per cent in 1921, 3.47 per cent in 1922 and 2.93 per cent in 1923.

"Argument is unnecessary to prove that this return is inadequate. The explanation of this inadequacy is not to be found in any shortcomings of the property considered as a transportation agency, or in any extravagance of outlay in connection with its operation. The physical condition of the property as regards both roadway and equipment is good. It has been well, though in no sense extravagantly maintained. It is capable of rendering, and is actually rendering, efficient service at unit co-operating costs which will bear comparison with those prevailing anywhere. The single explanation why the return is inadequate is that freight rates are too low."

### W. H. Bremner Describes Conditions

In his testimony, Mr. Bremner showed that average freight charges were only one-third greater than in 1915, which increase is totally inadequate when compared with the increases in the prices of materials and supplies, in taxes and in the cost of labor. He also compared prices of materials in previous years with present prices and outlined the needs of his road in order to maintain adequate service. An abstract of his testimony follows:

"Unless the Minneapolis & St. Louis Railroad Company can be assured of a sufficient income to permit it to be properly equipped and to operate in an efficient manner, a large industrial as well as a large agricultural population, will be seriously inconvenienced.

"The Minneapolis & St. Louis is generally looked upon as one of the weaker roads, financially, of the Northwest, and at the present time this is unquestionably true. However, it is only a comparatively short time ago, say 25 years, when the stock of the Minneapolis & St. Louis was selling above par, and it is only 15 years ago that it paid its last dividend. Prior to the great changes in the relation between the rates which the railroads were permitted to charge for their services and the cost of the various units necessary to be used in the furnishing of transportation, brought about by reason of the war, the Minneapolis & St. Louis was not in any immediate danger of being forced to the wall. The surplus to which reference has been made was not paid out in dividends to the stockholders but was put back into the property either in the form of additions and betterments or in the form of additional equipment. Omitting from consideration the years 1918, 1919 and 1920, because they were included wholly or partially in the period of federal control and the guaranty period, and turning to 1921 we find the net income after rentals reduced to approximately \$273,000, although the operating revenues had increased from \$11,000,000 in 1917 to over \$16,000,000 in 1921, while the tons of revenue freight carried one mile were substantially the same in the two years.

"If it had not been for the heavy reduction in freight rates brought about by the commission late in 1921 and in 1922 it is probable that the Minneapolis & St. Louis would not now be in the hands of the court.

"The figures for the first seven months of 1925 are now available and show as a result of operating a net railway operating income deficit of \$642,576.

"With an increase of 26 per cent in the tons of revenue freight carried one mile, there was an actual decrease of 6 per cent in man hours. The average distance freight was hauled increased 10 per cent. The revenue per ton per mile increased 33 per cent while the revenue per train mile increased 71 per cent. In spite of the increase in tons of freight carried one mile, the freight train mileage shows an actual decrease of 4 per cent and the loaded car mileage a decrease of approximately 3 per cent. This is brought about by reason of the fact that the average tons of revenue freight to each train increased 28 per cent and the average tons of revenue freight to each loaded car increased 25 per cent.

"In 1916 a reorganization of this company was effected and an assessment of \$20 per share levied upon the stock. For the \$4,500,000 thus paid in, the stock holders of this company have never received one penny, either in the form of dividends or otherwise, and, unless some relief is given which will bring the relationship between rates on transportation and costs of operation more nearly on a parity to what they were at the time this assessment was made, not only will the stockholders lose the amount thus paid in but there is a strong probability that unless they are prepared to pay another very substantial assessment their entire holdings of stock will be wiped out.

"The tons of revenue freight carried one mile by the Minneapolis & St. Louis in the year ended December 31, 1924 was 23 per cent greater than it was in the year ended December 31, 1915, and it was approximately 8 per cent greater than in the year ended December 31, 1917. Business should not be measured by peak years and freight rates should not be based upon the tonnage of peak years. The stockholders and bondholders and creditors of this company are entitled to consideration and should not be compelled to longer devote their money to the service of the public without any compensation whatsoever."

#### R. H. Aishton Outlines

##### Progress Made by the Railroads

The testimony of Mr. Aishton referred entirely to the progress made by the railroads in the direction of adequacy of service and efficiency, and economy in operation during the past five years. In his discussion he considered the railways of the country as a whole and also those of the Western district. He divided his testimony in two parts, the first being the increasing adequacy of transportation, and the second, the improvement made in efficiency and economy of railroad operation. An abstract of his testimony follows:

In considering the general question of efficiency and economy in the operation of the railroads, the adequacy of the plant is of fundamental importance. The tangible results of large expenditures of capital amounting to \$2,363,165,490 are shown in the number of miles of new track constructed and the total of 8,728 new locomotives and 534,508 new cars that have been put in service from January 1, 1922, to August 1, 1925.

The year 1925 shows the largest number of cars loaded in the history of the railroads for the same period of time, 33 weeks. And yet, with the carloading figures for several weeks past in excess of one million cars per week, there has been at all times a surplus of cars in excess of 200,000 in good order and ready for service and a surplus of locomotives in excess of 4,200 in good order and ready for service.

The shippers and receivers of freight have played a prominent part in the adequacy of transportation. The demurrage collections show a reduction of \$9,472,521 in 1924 as compared with 1920. The relative demurrage collections per car also show a reduction of 25 cents per car or 37 per cent in demurrage collected in 1924 as compared with 1920. We have been advised that one of the results of prompt movement of freight on the part of the railroads has been a material reduction in the amount of stocks carried by manufacturers and merchants. This situation has likewise added to the efficiency in car handling because the receivers have been able to take in the shipments without delay on arrival and dispose of the cars promptly.

The reduction in total operating expenses in 1924 as compared with 1920 amounts to \$1,319,000,000. This reduction has been brought about by greater efficiency in operation, by decreased prices for labor and materials and by some decline in traffic.

There has been almost a continuous reduction from year to year in the fuel consumed per unit of service in both freight and passenger service. In freight service alone for all lines there was a saving of \$39,022,000, in passenger service it amounted to \$9,905,000, or a total of \$48,927,000, due entirely to the lesser quantity used per unit of service performed in 1924 as compared with 1920, utilizing 1924 prices alone as the basis of comparison, and thus eliminating the factor of changes in the price of fuel. During the same period the western lines saved their full proportion, \$17,752,000, of the total amount. The remainder of the reduction in the fuel cost is due to a reduction in traffic comparing the two years and a reduction in the price of fuel. This increase in the efficiency due to economy in fuel consumption has been the result of capital expenditures for improved devices on locomotives, of a very active campaign on the part of the railroads and their committees in the American Railway Association, and through the active and intelligent co-operation on the part of the officers and employees having to do with coal handling. It is not possible to allocate definite savings to each contributing factor.

A reduction in loss and damage has been brought about by active

co-operation between the railroads themselves, their officers and employees, and the shippers and receivers of freight. There has been better packing on the part of shippers and more care has been used in the handling on the part of railroad employees. This loss and damage to freight is now relatively at its lowest point in the history of the railroads, having been reduced from \$137,000,000 in 1920 to \$50,000,000 in 1924 for the railroads as a whole, which includes a reduction made by the western lines from \$54,000,000 in 1920 to \$19,000,000 in 1924.

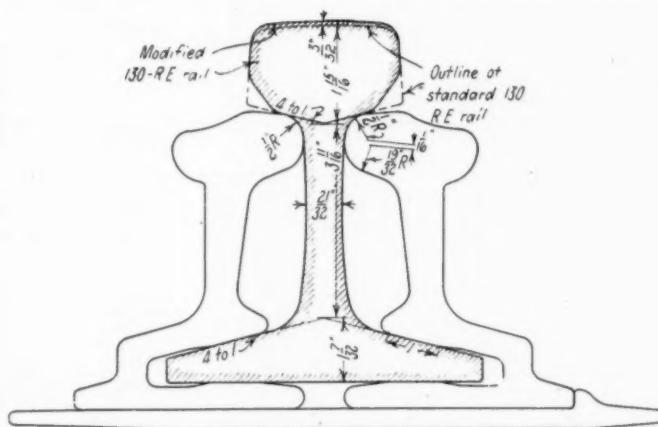
The expenditures by the railroads on account of injuries to persons shows a reduction from 56 million dollars to 39 million dollars for the railroads as a whole in 1924 as compared with 1920, and a reduction from 24 million dollars to 16 million dollars in the same period on western lines. The very active campaign carried on by the railroads has had very satisfactory results, so far as employees are concerned. All the years since 1920 have shown considerable reductions under that year, and the trend from 1921 to 1924 has corresponded in a general way with the trend in traffic. Casualties to persons other than passengers or railroad employees have not shown the same satisfactory reduction, but that is unquestionably due to the very large increase in motor vehicle traffic.

Traffic averages show an increase in the efficiency in railroad operation in every respect except the net tons per loaded car, where there has been a decrease. This decrease in the net tons per loaded car is accounted for to some extent by the changes in traffic, one year with another. In 1920 there was handled the heaviest coal traffic that has been handled at any time during the five-year period. A larger proportion of the total traffic, therefore, was made up of heavy loading commodities in that year.

An increase in car capacity of 2.1 tons per car on August 1, 1925, has occurred since January 1, 1922. Had it not been for this increase in car capacity the tons per car loaded in 1924 compared with the previous years would have shown even a greater reduction.

## Develop New Rail Section

THE use of the "head-free" type of rail joint manufactured by the Rail Joint Company, New York, has led to the development of a new rail section that embodies a marked departure from current practice. In the head-free joint the upper bearing of the joint bar against the rail is confined to a curved surface fitting the fillet under the rail head. Thus the upper fishing surface



The New Rail Section in Its Relation to the "Head Free" Joint and the Standard R. E. Section

of the rail is not brought into play but all adjustment of the joint bar against the rail is obtained by movement on the lower fishing surface.

Since the upper fishing surface serves no useful purpose with this type of joint it was suggested that the material required in the two lower corners of the rail head to form the fishing surfaces could very well be placed elsewhere in the section where it would be of more value. This thought led to the development of the section shown in the drawing in which the lower corners of the head have

been camfered and the metal thus saved added to the top of the head.

In the section designed for 130-lb. rail, which is the one shown in the diagram, the increase in the thickness of the head is  $\frac{3}{32}$  in. and as the remainder of the section is exactly the same as the standard 130-lb. R. E. section the total height of the rail has been increased by this amount. The Reading company has recently ordered 10,000 tons of rail to be rolled according to this section for a trial installation. The advantages which it is expected to gain from this rail include a better texture in the steel due to more advantageous rolling, greater girder strength, greater permissible limits of wear and therefore longer life. The new section has been developed by the Thompson Rail Corporation, New York.

## Freight Car Loading Sets New Record

WASHINGTON, D. C.

ALL previous records for the number of freight cars loaded in a week were broken in the week ended August 29, when the total was 1,124,436 cars. The previous record loading was 1,112,345 cars in the week of October 24, 1924, the peak week of that year. Coal loading amounting to 211,683 cars and miscellaneous loading amounting to 414,345 cars contributed to the result, although increases as compared with last year were shown in all districts except the Central Western and in all classes of commodities except grain and grain products and livestock. As compared with the corresponding week of last year the total loading showed an increase of 103,627 cars and as compared with 1923 an increase of 32,286 cars. Loading was less than in 1923, however, in the Allegheny and Northwestern districts and in the western districts combined; also in livestock, coke, forest products and ore. As compared with last year coal loading showed an increase of 42,573 cars and miscellaneous loading an increase of 36,962 cars. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

REVENUE FREIGHT CAR LOADING, WEEK ENDED AUGUST 29, 1925

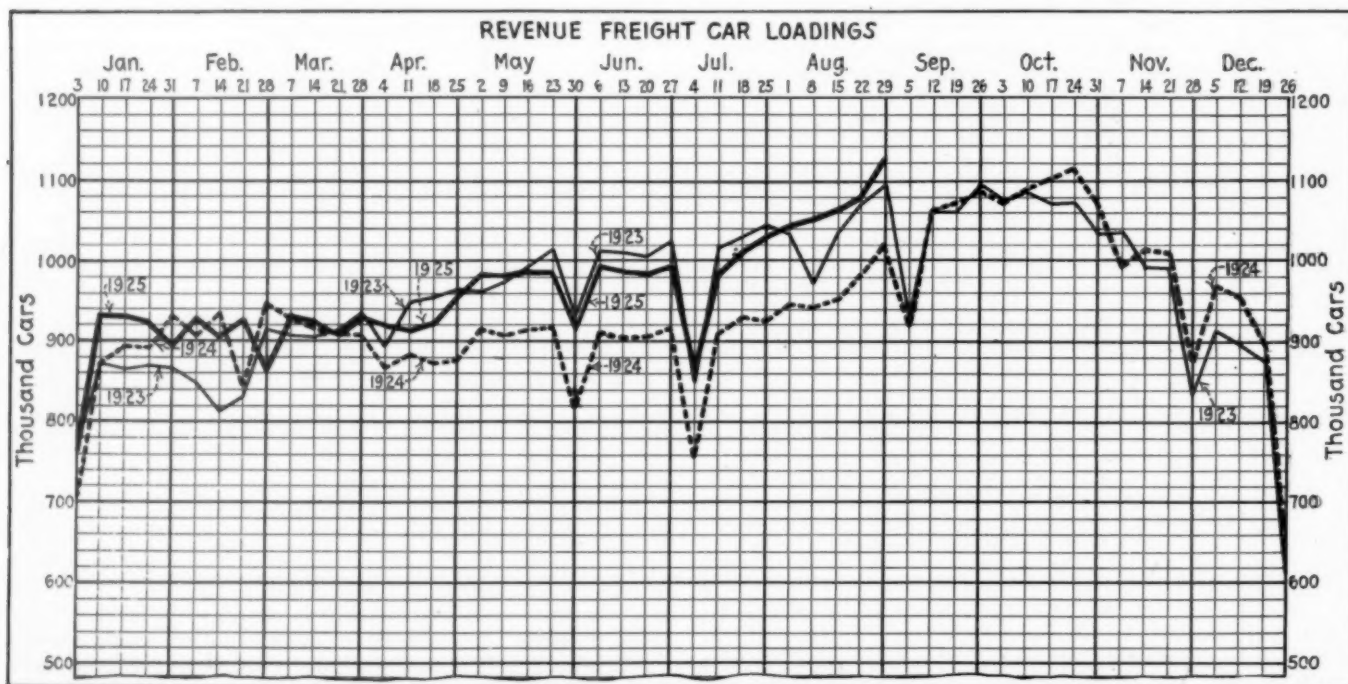
Districts	1925	1924	1923
Eastern	262,733	236,230	255,646
Allegheny	224,892	202,488	232,741
Pocahontas	58,543	47,903	45,183
Southern	157,590	140,205	137,294
Northwestern	175,717	151,917	182,488
Central Western	168,572	170,292	167,505
Southwestern	76,389	71,774	71,293
Total Western	420,678	393,983	421,286
Commodities			
Grain and grain products	56,684	68,592	54,599
Live stock	31,732	32,315	38,641
Coal	211,683	169,110	206,578
Coke	10,338	7,841	13,970
Forest products	72,279	69,471	77,153
Ore	63,075	48,923	78,193
Mdse., l.c.l.	264,300	247,174	246,734
Miscellaneous	414,345	377,383	376,282
Total	1,124,436	1,020,809	1,092,150
August 22	1,080,107	982,760	1,069,915
August 15	1,064,793	953,408	1,039,938
August 8	1,051,611	941,407	973,750
August 1	1,043,063	954,613	1,033,466
Cumulative total, 35 weeks	33,549,472	31,554,058	33,155,456

The freight car surplus for the week ended August 22 averaged 195,327 cars, including 53,755 coal cars and 103,063 box cars. The Canadian roads for the same week had a surplus of 34,760 cars, including 31,300 box cars.

### Car Loading Increases in Canada

Coal mines are shipping again, the new grain has begun to move and the car loading curve in Canada has started upwards. Total revenue car loadings for the week ended August 29 aggregated 55,996 cars, an increase over the previous week of 2,401 cars and an increase over the same week last year of 4,042 cars. Grain loading was heavier than a year ago by 325 cars, coal loading was lighter by 544 cars, lumber was heavier by 422 cars, merchandise by 1,108 cars and miscellaneous freight by 2,015.

Commodities	Total for Canada			Cumulative totals to date	
	Aug. 29, 1925	Aug. 22, 1925	Aug. 30, 1924	1925	1924
Grain and grain products	4,304	3,039	3,979	191,055	257,276
Live stock	2,594	2,503	2,426	77,653	75,932
Coal	4,957	4,919	5,501	118,087	170,518
Coke	362	240	171	9,536	7,849
Lumber	3,933	4,130	3,511	123,267	126,142
Pulp wood	1,884	1,958	1,749	99,495	100,047
Pulp and paper	1,907	1,903	1,853	70,601	69,168
Other forest products	2,435	2,162	2,207	100,171	92,789
Ore	1,351	1,682	1,411	47,231	43,087
Merchandise L.C.L.	16,695	15,984	15,587	525,334	500,119
Miscellaneous	15,574	15,075	13,559	419,071	404,823
Total cars loaded	55,996	53,595	51,954	1,781,501	1,847,750
Total cars received from connections	35,106	32,522	28,825	1,150,932	1,108,665





A View of the Norfolk & Western's New Oil House from the Shipping Side

# Norfolk & Western Builds Large Oilhouse

*Modern facilities with 230,000 gal. capacity at Roanoke, Va., will supply entire system*

By J. W. Wade, General Storekeeper, and  
L. L. Kelly, Bridge Engineer, Norfolk & Western

IN 1900 the Norfolk & Western constructed a brick oil and waste house at the Roanoke, Va., shops, the oil room of which was 50 ft. by 60 ft. in area and contained 22 tanks of 2,000 gal. capacity each for various kinds of oil and two 1,000-gal. tanks for gasoline, or a total storage capacity of 46,000-gal. The waste room,

tire system. After a careful study of the requirements for handling and storing the various oils, grease, gas and waste, detailed plans were prepared for a building 222 ft. 9 in. wide with a basement 100 ft. long, 50 ft. wide and 13 ft. deep. There are four rooms on the main floor which, with the basement, make a total of five separate rooms for the handling of these materials.

## Large Storage Provided in Basement

In the basement are 19 rectangular storage tanks for the storage of the following oils in the quantities indicated: Valve oil, one 16,000-gal. tank; engine oil, one 16,000-gal. tank; car oil, one 16,000-gal. tank and one 9,000-gal. tank; fuel oil, one 15,000-gal. tank; road oil, one 9,000-gal. tank; 150 oil, one 16,000-gal. tank; 300 oil, one 9,000-gal. tank; signal oil, one 8,000-gal. tank; Nabob engine oil, one 5,000-gal. tank; Nabob car oil, one 5,000-gal. tank; Nabob cylinder oil, one 2,000-gal. tank; turbine oil, one 5,000-gal. tank; No. 2 cutting oil, one 5,000-gal. tank; transformer oil, one 2,000-gal. tank; air compressor oil, one 2,000-gal. tank; dynamo oil, one 2,000-gal. tank; gas engine oil, two 2,000-gal. tanks.

The oil is unloaded by gravity through two filling boxes on the receiving side of the building which have been located to permit several tank cars to be unloaded simultaneously. Filling nozzles have been installed in the filling boxes in duplicate in order that two cars of the same kind of oil may be unloaded at the same time. The six smaller tanks are filled from flush type filling boxes from both the platform and the interior of the building. In order to facilitate the loading of compartment cars that accompany the supply cars over the divisions, connections are provided on the loading platform. These outlets are connected to power-driven pumps.

The basement is ventilated by eight 24-in. galvanized iron tubes which pass through the wall and under the concrete platform. Each tube is equipped with cast iron



An End View of the Oil House from the Receiving Side Showing the Cast Iron Shutters Along the Base of the Wall for the Basement Ventilator Tubes

which was 30 ft. by 50 ft., had a storage capacity of about 300 bales, the waste being stored by the use of a six-inch air hoist.

The increase in motive power and other equipment incident to the growth and progress of the Norfolk & Western system over a quarter of a century made these facilities entirely inadequate to take care of the present needs of the road, and in 1924 the management appropriated money for the construction of a new up-to-date building for the storing and handling of oil and waste for the en-

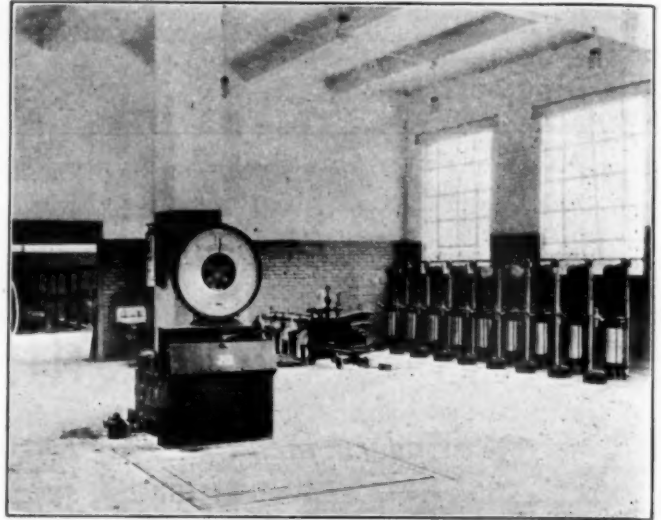
shutters, which may be opened and closed from the outside. In the case of fire, these shutters can be closed and the steam jets which are provided in the basement opened to smother the fire.

#### Main Floor is Divided into Four Rooms

The first 20 ft. by 50 ft. section of the main floor on the south end of the building is occupied by the gasoline drum filling room. A five-gallon hand pump for high test gasoline is located in this room, while a 25 g. p. m. motor-driven pump for motor gasoline has been placed in a small compartment under the concrete platform at the end of the building. This was done not only to decrease the fire hazard but also to shorten the lift of the pump. The switch is located outside of the building and is operated by a shaft through the wall. The 1,000-gal. high test gasoline tank and the 25,000-gal. motor gasoline tank are placed 10 ft. from the outer wall of the platform. The top level of the tanks is three feet underground. The motors on all power pumps are of the induction type, thereby eliminating sparking. The gasoline drum filling room is served by six foot doors on each side, and since the windows in this compartment are stationary, additional ventilation is secured by ventilators protected by louvres at the floor line and by roof ventilators. The room has sufficient space for storing 100 empty barrels for the shipment of gasoline.

The next compartment is the oil filling room, office and file room, 50 ft. by 60 ft. in area. In the center of the room is a stationary scale of the dial reading type, which serves both the oil and grease storage rooms. One of the principal purposes of this scale is to check the measuring equipment during periods of extreme temperature fluctuations. Grouped in one-half of the oil filling room are six 1½ in. 25-g. p. m. power pumps serving tanks as shown on the floor plan. All pumps are of the rotary type, and connected directly to squirrel cage induction motors. The quantity of oil delivered from these pumps is measured and recorded by vertical-dial flow meters which are placed conveniently near the barrelling hose

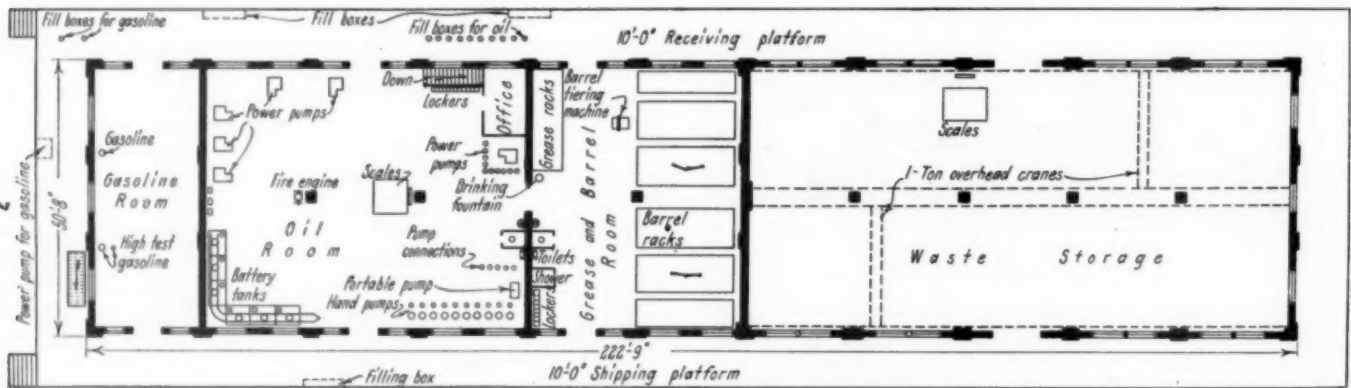
pletely equipped with indicating and recording meters, discharge registers, shut-off nozzles and return drip pans, so that all excess quantities are returned to the main storage unit. There is also a battery of six floor tanks equipped with barrel handling apparatus and gallon-stroke self-measuring pumps, which were installed for oils that are kept only in small quantities. Gallon indicators are



Looking Toward the Hand Pump Corner of the Oil Filling Room with the Floor Scale in the Foreground and the Portable Power Oil Pump in the Background

placed on the walls back of the pumps which show the approximate contents of the various tanks, and permit the storekeeper to check his receipts, stock and issues. Flush floor fill boxes are placed in the platform and the oil room in duplicate sets for emptying drums into the tanks.

The 10-ft. by 10-ft. office shown on the floor plan is of steel sash construction, completely equipped with steel



The Floor Plan of the Norfolk & Western's New Oil House, Showing the Location of Pumps and Storage Tanks

where they can be easily observed by the operator. The motor control switches are also placed at the barrelling stations to permit the operator to expedite the handling of a large number of containers.

In addition to the six pumps mentioned, this room is equipped with a 25-g. p. m. power pump mounted on a truck and so constructed that in case of a breakdown of any stationary pump it can be connected to the suction stubs feeding the disabled pump, or in case of a heavy demand, to the suction stubs of the hand pump. Ten self-measuring five gallon hand-operated pumps are used for filling the small containers. These pumps are com-

furniture. The file room is located immediately above the office.

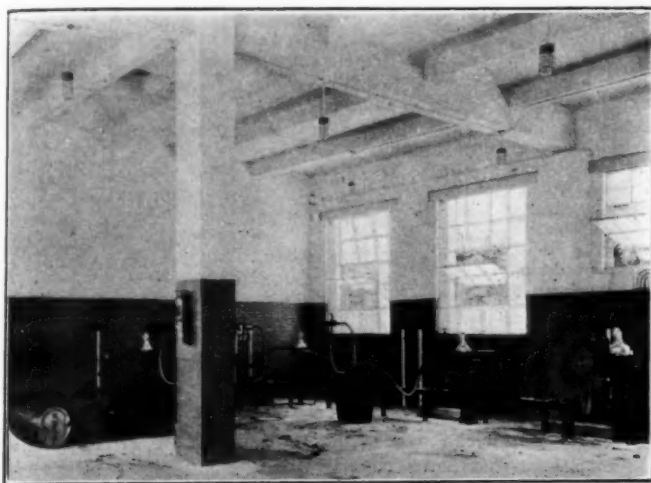
The next 40 ft. by 50 ft. compartment is the barrel and grease storage room. Steel racks, three tiers high, are provided for barrel storage and cup grease is stored in steel skeleton racks. The capacity is 250 bbl. or 13,200 gal. of grease, with sufficient space for doubling the storage. The room is equipped with an electric tiering truck for elevating and lowering barrels to and from racks.

The remaining 100-ft. by 50-ft. section is the waste storage room which has a storage capacity of 1,500 bales and is provided with two overhead electric cranes of 1,000-

lb. capacity each, which run the full length of the room for handling the bales. It is also provided with a Toledo dial scale of 2,000 lb. capacity.

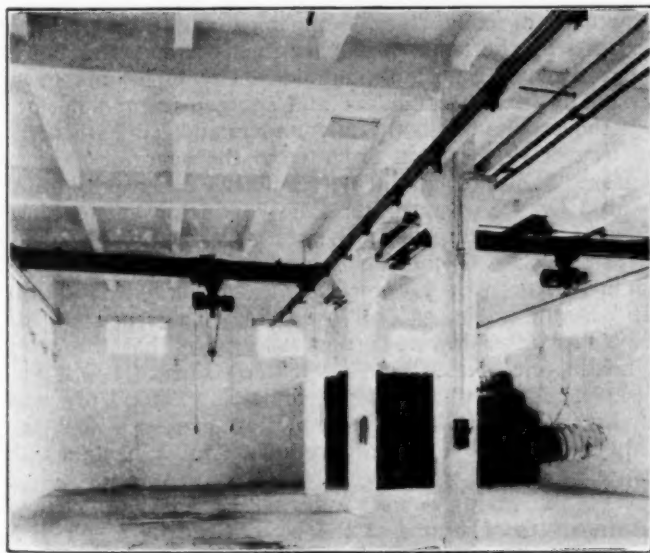
#### Extensive Provisions for Fire Protection

In addition to the precautions taken in the design, layout and the construction of the building for reducing the



A Corner of the Oil Filling Room Showing the Motor Driven Pumps and the Vertical Flow Meters

fire hazard, a number of other arrangements have been made to prevent the possibility of danger. In the first place the building has been isolated from other shop buildings, being located in the extreme end of the shop area. The building is fireproof throughout with brick walls, concrete floors and roof, and standard fire walls between the compartments, and is further protected by automatic fire doors. The roof is pierced at intervals with large galvanized iron fusible-link-operated ventilators which



The Waste Storage Room Is Equipped with Overhead Electric Cranes of 1,000 lb. Capacity Each

close automatically in case of fire. All windows are of steel sash with wire glass and are equipped with swing sash ventilators, except in the gasoline room where the sash are stationary. The doors are of built-up fireproof construction, and are of the swing type, with the exception of the fire doors between the compartments and the doors serving the waste room which are of the top roller type. All lights in the building are protected with vapor-

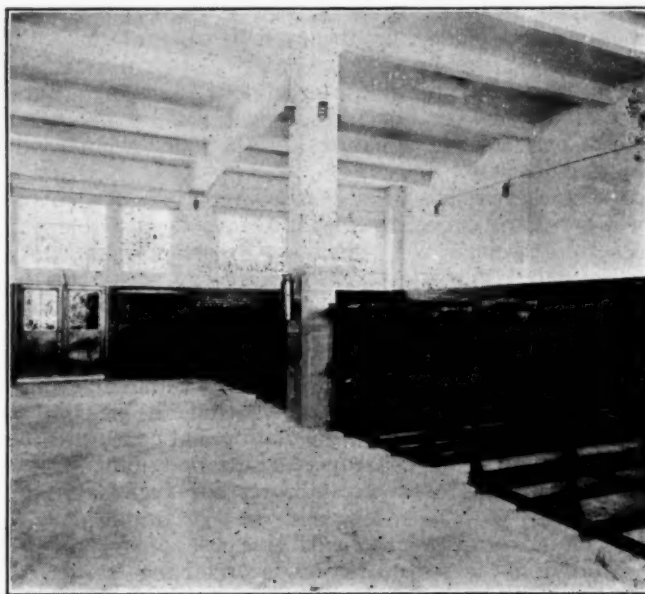
proof globes and all switches located in the building are either oil-immersed or of the enclosed type. The fire fighting apparatus consists of twelve 2½-gal. Foamite extinguishers, one 40-gal. Foamite engine and steam jets controlled by valves with stems extending through the walls at intervals over the building.

The entire building except the waste room is heated by steam and steam coils are placed under all tanks in the basement to keep them at the right temperature so that the oils will flow properly.

Surrounding the building is a 10-ft. reinforced concrete platform which is designed, like the oil house floor, to carry a live load of 300 lb. per sq. ft.

#### New Facility a Labor Saver

The entire system has been designed and installed so as to coordinate all parts, to eliminate all preventable losses, such as leakage, evaporation, spillage, inaccuracy



A Portion of the Barrel Storage Racks in the Barrel and Grease Room

of measurement, etc., and for the utmost convenience in operation. In the new plant one man can draw 20 drums of gasoline per hour, whereas formerly, with the five-gallon hand pump, he could only draw about eight drums per hour. In the barrel filling room, one man can fill from 20 to 25 drums of oil per hour, with the power pumps; while formerly one man could only fill 6 to 10 drums per hour, depending upon the nature of the oil handled, which was drawn through faucets into the containers. Under the new arrangements guesswork is eliminated, likewise waste from spillage. Under the new methods three men can unload, handle and store waste faster than five men could under the old practice, which necessitated lifting the bales with an air hoist and packing by hand.

The Wayne Tank & Pump Company, Fort Wayne, Ind., designed, furnished and installed the tanks, pumps and other oil-handling equipment, providing for the storage of approximately 230,000-gal. of oil. The building was designed in the office of W. P. Wiltsee, chief engineer, Norfolk & Western, under the supervision of L. L. Kelly, bridge engineer, in co-operation with J. W. Wade, general storekeeper, and was constructed by J. P. Pettyjohn & Company, Lynchburg, Va., with A. Bruner, assistant engineer, in charge of the construction and engineering in the field. Work on the building was started in August, 1924, and completed in July, 1925.

# Heavy Traffic Demands "19" Order\*

*Tests show that stopping a heavy freight train for "31" order costs \$6.39 and consumes 19 minutes*

By H. G. Duckwitz  
Supervisor, Service Bureau, Illinois Central, Chicago

IN the evolution of train operations the methods of train movement by train orders have not kept pace with other improvements. Present standard rules still retain the "31" train order with but few modifications. The question of adopting the exclusive use of the "19" order, or just simply a "train order" with rules revised to conform with any traffic conditions, authorizing the issuance and delivery of train orders without obtaining train or enginemen's signatures, has become an important topic for discussion.

During the writer's train dispatching experience, covering a period of over 30 years, it always seemed that our rules were entirely too restrictive to obtain satisfactory results in heavy single track territory, by reason of the uncertainty in calculating accurately the time required in delivering a "31" train order at the intermediate station. The conductor who rode the engine usually effected the quickest delivery and completed his trip within the minimum space of time, while the one who rode the caboose, as a rule upset the dispatcher's calculation and consumed the maximum time, with consequent effect upon other trains and resultant increased expenditures for fuel, overtime, etc.

As an advocate of the exclusive use of form "19" train order, I can see no reason for retaining form "31" in any territory, whether or not protected by block, automatic or otherwise, and I strongly favor the modification of our rules to conform with present day conditions, which with the constantly increasing length and frequency of trains practically prohibits the unnecessary stop.

There does not seem to be any good reason for securing the conductor's signature to a train order, especially after an operator has acknowledged receipt and is held responsible for its delivery; neither does it appear consistent to regard a "19" train order acknowledged and signed by the operator less binding than the "31" order for which we stop and hold the train for the conductor's signature, as in both cases their movement beyond the train order station must be governed by the train order signal indication, therefore, the restricted train cannot proceed without an order, whether issued on form "31" or "19". Furthermore, the fact that all deliveries or train orders must be accompanied by clearance card, Form-44, on which the total and individual numbers of orders are shown, amply insures complete delivery.

## Why Use Both Forms

Present rules authorizing the use of both "19" and "31" orders, the former with certain restrictions, frequently lead to instances where both forms are issued to the same train. While there may not be any hazard involved through such occurrences, it does appear confusing

\*This article was submitted in the contest on the Use of the "19" Order conducted by the *Railway Age*. The three prize winning papers and others were published in the *Railway Age* for February 21, 1925, April 18, 1925, and August 22, 1925.

Using an Advance Automatic Signal at an Interlocking Plant as a Train-Order Signal



to those connected with the movement of such trains, especially so if any of the orders restricts its movement. Train dispatchers cannot always avoid this condition.

The questionable features in connection with discontinuing the use of the "31" order may be summed up as follows: (a) Receipting for time tables; (b) reducing a time order; (c) restricting a train at a point not a train order office or at one where the office is closed; (d) restricting a train that has been cleared or where its engine has passed the train order signal; (e) restricting the superiority of a train at a point where such superiority is restricted.

Rules may be revised to conform with the exclusive use of the "19" order to meet the above exceptions, respectively, as follows: (a) Receipts for new time tables may be acknowledged on a special form for taking signatures of conductors, enginemen and others, to be recorded by the train dispatcher in his train order book, under the new time table number. (b) Operators must personally inform conductor and engineman, and not accept the order until both fully understand, and are present to receive the train order from the operator at time of issue. Dispatcher will not issue the order until fully assured by the operator that the conductor and engineman are in the office to receive the order at time of issue. (c) Form "19" is applicable, and may be signed by the conductor, or whoever receives the order. (d) Form "19" is applicable. This order may be issued by the dispatcher after having proper assurance that the train is held. (See Rev. Rule 219). (e) Form "19" is applicable. A train order signal indicating "stop" prevents further movement and, if conditions are such that the train may run by, special precaution must be taken to insure safety.

With the exclusive use of form "19," a slight change in one of the columns at the bottom of the blank provided for the purpose of recording the time of completion will prepare the form for general use by simply substituting the words, "Received by," instead of "Operator."

## Modify Rules to Permit Exclusive Use of Form "19"

The present standard rules for the movement by train order may be modified as follows, after all references to the use of form "31" are eliminated:

Rule 207. To transmit a train order, the signal "19" followed by the direction, must be given to each office addressed, the number

of copies being stated, if more or less than three, thus: "19 North, copy 7."

Rule 211. When a train order has been transmitted, the operator must, unless otherwise directed, repeat it at once from the manifold copy in the succession in which the several offices have been addressed. Each operator receiving the order must observe how it is repeated by the operator who first repeats it, and must call attention to any discrepancy. When the order has been repeated correctly by an operator, the response "complete" and the time, with the initials of the train dispatcher, will be given by the train dispatcher. The operator receiving this response will write on each copy the word "complete," the time, and his last name in full, and after checking with the train dispatcher, the numbers of all orders held for a train, will personally deliver a copy to each person addressed. When delivery to the engineman will take the operator from the immediate vicinity of his office, the engineman's copy may be delivered by a trainman.

When a train order restricting the superiority of a train is issued for it at the point where such superiority is restricted, the train must be brought to a stop before delivery of the order. An operator's check of orders on hand for delivery must be made after the train has stopped.

Enginemen must show train orders to firemen and when practicable, to forward trainmen. Conductors must show train orders to flagmen and, when practicable, to other trainmen. Operators must furnish conductors and enginemen clearance card Form-44 with all train orders, and also as otherwise provided by the rules, retaining lowest carbon copy.

Rule 213. "Complete" must not be given to a train order for delivery to an inferior train until the "X" response has been sent, or "complete" given to the operator who receives the order for the superior train.

"Complete" will be given upon the signature of the operator or the person who receives the order, who will supply copies for the conductor and engineman addressed.

Rule 214. When a train order has been acknowledged by the "X" response and before "complete" has been given, the order must be treated as a holding order for the train addressed, but must not be otherwise acted on until "complete" has been given.

If the line fail before the "X" response has been sent, the order at that office is of no effect and must be treated as if it had not been sent.

Rule 217. A train order to be delivered to a train at a point not a train order office, or at one at which the office is closed must be addressed to "C. and E. \_\_\_\_\_ at, or between \_\_\_\_\_ and \_\_\_\_\_ care of \_\_\_\_\_," and forwarded and delivered by the conductor or other person in whose care it is addressed. Copies must be supplied for the conductor and engineman addressed and a copy for the person by whom the order is to be delivered, upon which he will write the time and date delivery was made. This copy he must deliver to the first operator accessible, who must preserve it and transmit this information to the train dispatcher. Orders so delivered must be acted on as if "complete" had been given in the usual way.

For orders which are sent in the manner herein provided to a train, the superiority of which is thereby restricted, "complete" must not be given to an inferior train until delivery of the order to the superior train has been sent to the train dispatcher.

Conductor, engineman or others in whose care a train order is sent to another train, must personally assure themselves that the order is delivered to the conductor and engineman of the train addressed.

Rule 219. A train order must not be repeated or "X" response given for a train which has been cleared or of which the engine has passed the train order signal until both conductor and engineman have been notified by the operator and are in the office to receive the order from the operator direct, at time of issue.

Rule 221. A fixed signal must be used at each train order office, which shall indicate "stop" when trains are to be stopped for train orders. When there are no orders the signal must indicate "proceed."

When an operator receives the signal "19" followed by the direction, he must immediately display the "stop" signal for the direction indicated and then reply "stop displayed," adding the direction; and until the order has been delivered or annulled the signal must not be restored to "proceed." While "stop" is indicated trains must not proceed without a clearance card Form-44.

### Additional Rules

To relay a train order the train dispatcher will transmit it to the relay office, from which it will be transmitted to destination. The receiver at destination must repeat to relaying point; relaying operator or person must underline each word and figure and then repeat to the train dispatcher, who will, if correct, respond "complete" as per Rule 211.

In order to insure safety when a train order is sent to a train at a point where no operator is on duty, the conductor of the train addressed must sign his name to such order before com-

pleted by the train dispatcher. Conductor must personally deliver such orders to his engineman and require him to read it aloud to him before permitting the train to start. Orders received in this manner must also be handled in compliance with Rule 211.

When necessary to restrict a train for an opposing train, at a point not a train order station, the meet or wait order must be given it, when practicable, two open telegraph stations in advance of such a point. In so restricting a passenger train, the order should, in addition, also be sent to the superior passenger train at the last open train order station before reaching the place of meeting.

Dispatchers should, as far as practicable, anticipate the necessity for train orders and have them ready for delivery immediately on arrival of train, exercising care in instructing operators as to whether or not trains are to be given "proceed" signal.

Under no circumstances will the operator give a "proceed" signal for the purpose of delivering train orders, without first obtaining such instructions from the train dispatcher.

Train and enginemen must approach a train order signal displaying "stop" prepared to stop between siding switches, regardless of any "proceed" hand or lamp signal from the operator. Train orders must be read before passing siding switch in advance of train.

The above rules are in accordance as far as practicable with standard code of the American Railway Association, as pertaining to train orders revised to conform with proposed modification. With the exclusion of the "31" order numerous unnecessary stops may be avoided and as previously mentioned herein, the stopping of a train oftentimes seriously affects other trains, and is the source of excessive overtime and other additional expenditures. The cost of stopping and starting trains varies according to local conditions, such as grades, curvatures, number of cars in trains, wages, material, including fuel, etc.

### Cost of Train Stops Determined by Tests

From tests and checks made, some with the assistance of an up-to-date dynamometer test car, the following estimates of costs to stop and start a train on level track were determined. These calculations of time lost and resultant expense cover the period from the time the locomotive shuts off steam to stop, to where permissible speed is again resumed, ordinarily 25 miles per hour for freight trains and 50 miles per hour for passenger trains.

An 11-car passenger train handled by the modern Pacific type locomotive lost 6 min., amounting to 74 cents, itemized as follows:

Fuel .....	\$0.674
Water .....	0.0377
Friction locomotives .....	0.0037
Friction cars .....	0.0192
Oil and miscellaneous .....	0.0046
	<hr/>
	\$0.7392

A 50-car freight train of about 2,500 tons, hauled by a Mikado type engine, lost 15 min., equivalent to \$1.60, itemized as follows:

Fuel .....	\$0.976
Water .....	0.0423
Friction locomotives .....	0.0049
Friction cars .....	0.052
Oil and miscellaneous .....	0.0049
Per diem and car ownership .....	0.5175
	<hr/>
Total .....	\$1.5976 non-overtime
	1.282 overtime
Total .....	<hr/>
	\$2.8796

A 100-car freight train of about 5,000 tons, hauled by a Central type (2-10-2) engine, will lose 30 min., amounting to \$3.83, itemized as follows:

Fuel .....	\$1.562
Water .....	0.072
Friction locomotives .....	0.0062
Friction cars .....	0.105
Oil and miscellaneous .....	0.0099
Per diem and car ownership .....	2.07
	<hr/>
Total .....	\$3.8251 non-overtime
	2.57 overtime
Total .....	<hr/>
	\$6.3951

An analysis of these stops developed the following divisions of time:

On an 11-car passenger train of all steel equipment, weighting approximately 750 tons and moving at a speed of 50 miles per hour with a modern Pacific type locomotive, the average stop is made within a distance of 2,344 ft., or 0.44 miles in 1 min. This distance, if the stop had not been made, would have been covered in 32 sec., or a loss of 28 sec. Four minutes' time is consumed by the conductor in going to the office, reading and signing a train order and delivering it to the engine man; this together with the time consumed in regaining maximum speed, which is covered within an average distance of 2 miles, consuming 4 min. from the starting point, which distance would have been covered in 2 min. and 24 sec., an additional loss of 96 sec., if the stop had not been made, represents a total loss of 6 min. and 4 sec.

Tests of braking distances made with freight trains of the average train load and Mikado type locomotives, moving at a speed of 25 miles per hour carrying maximum tonnage, averaged 1,980 ft., stopping within a period of 114 sec. This distance would have been covered in 54 sec. if the stop had not been made, or a loss of 1 min. Assuming that the train consisted of 75 cars with the engine standing opposite a train order signal and the conductor in the caboose, 17 min. time was consumed by the conductor getting orders and making de-

livery of it. An average of 15 min., or a distance of 3.4 miles from the starting point, was required before the normal speed of 25 miles an hour was attained; ordinarily this distance would have been covered in about 8 min., and adding the 1 min. loss in stopping, aggregated a total loss of 25 min.

Estimates of additional fuel cost are based on the average price of \$4.07 per ton, and actual scoop count. Per diem is estimated on the basis of the regular established rate of \$1 per day per car. Oil, water and friction including wear and tear as based on actual costs of material.

The heaviest item of expense connected with the unnecessary stop is overtime. Tonnage trains operated under heavy traffic conditions seldom complete a trip on a 100-mile district within an eight-hour period. It is, therefore, very evident that each stop for orders means an added expense at overtime rates, not only to the train receiving the order but to all others affected thereby, this penalty expense oftentimes nearly equalling the regular wages. While the use of the "31" train order cannot be held entirely responsible for the excessive overtime expense, the benefits and savings possible through the modified system of train movements by train order are obvious.

## Finds Livestock Rates Low

*Recommends that complaint asking restoration of pre-war rates be dismissed*

**D**ISMISSAL of the complaints filed by the American National Livestock Association and others, asking a restoration of pre-war rates on livestock throughout the west and some other changes, and a finding that the present rates are not unreasonable, are recommended to the Interstate Commerce Commission in a tentative report proposed by W. A. Disque, attorney-examiner, made public on September 5. The report covered five complaints, grouped under the head of "Live Stock Cases of 1925," several of which were heard together on a common record.

As to the main complaint, involving all rates on livestock in the territory served by the western and mountain-Pacific groups of carriers, including Illinois and Wisconsin, which were alleged to be unreasonable to the extent that they exceed the pre-war rates; that is, generally speaking, the rates in effect for about 20 years prior to June 25, 1918, when the director general's order No. 28 became effective, the report recommends a finding that the rates in the aggregate are below the cost of service and not unreasonable. The attorney examiner suggests that the method which should be followed to increase the rates may be considered in the general western rate case. This case was grounded primarily on economic considerations, complainant's contention being, in effect, that due to the depressed condition of the livestock industry the rates are higher than the traffic can reasonably bear. As to the other complaints the report recommends findings:

That rates on cattle, hogs, sheep and goats, in carloads, from points in Oklahoma and Texas to Oklahoma City, Okla., are not unreasonable or unduly prejudicial.

That rates on stock cattle in carloads, from points in Oklahoma and Texas to Missouri river cities and points

in Missouri, Iowa and Nebraska are not unreasonable.

That rates on cattle in carloads from points in Texas to points in Kansas are not unreasonable, unjustly discriminatory, unduly prejudicial, or violative of section 4 of the act.

That rates on ordinary livestock, in carloads, from points in Iowa, Missouri, Kansas, Nebraska, Wisconsin, Minnesota, South Dakota, and part of Illinois to Cleveland, Ohio, are not unreasonable or unduly prejudicial.

Regarding the general complaint of the American National Livestock Association, the report says in part:

### Condition of the Industry

For all practical purposes it may be said that complainants' evidence in the present case relates wholly to the condition of the cattle industry. It is similar to that offered in the original case. Witnesses from various parts of the West, but particularly from the Central West and Southwest, more or less familiar with conditions, testified generally that there had been little, if any, change in the situation since 1921. In fact, it was asserted by some that conditions are now even less favorable. While, many, if not most, of complainant's principal witnesses were men of affluence and owners of large ranches, there is no reason to believe that their apparent prosperity is due to recent profits in cattle raising or that it is representative of the general situation in the industry. Many operators have disposed of their holdings and gone out of the business because of the lack of profit therein. A number of specific instances are cited in which cattle raisers' expense computations indicate that their operations in 1923 and 1924 were conducted at a loss. Some cattlemen who are operating on borrowed capital are in particularly unfortunate circumstances because of the interest payments that accrue in addition to operating expenses. Others that are staying in the business are doing so because it is their life work, they have no other calling and their funds are tied up in land and equipment that can not be readily sold to advantage.

Defendants deny the statements of complainants' witnesses regarding the depression in the cattle industry and undertake to prove, principally by the studies and conclusions of statistical ex-

WASHINGTON, D. C.

perts, that the live stock and general farming industries have been largely rehabilitated and are on the road to early recovery.

Defendants offer evidence to the effect that the net incomes of farmers generally in the United States have increased continuously and substantially since the post-war depression. For the years 1922 to 1924 the average income for all farmers is shown to be about 50 per cent greater than that for the 1910-1915 period. The increases in incomes and the reductions in the prices of non-agricultural commodities since the war are shown to have resulted in the farmer's dollar being worth about as much in 1923 and 1924 as it was before the war.

### Rates and Prices

Defendants point out that complainant seeks practically a restoration of the rates that were in effect before the dawn of the present century, since which time the prices of labor and commodities and living costs in general have doubled or trebled. During the 20-year period preceding our entry into the war the value of live stock steadily increased until it more than doubled and since then there has been a substantial further increase, but practically the only increases in rates have been the 25-per cent increase, with a 7-cent maximum, made by the Director-General, and the varying increases, averaging perhaps 32 per cent, authorized by this commission in 1920, from which have been taken the 10 and 20 per cent reductions required in 1922. While there have been numerous cases decided during the past 30 years, involving live stock rates in the western district, few if any of them have meant generally increased rates for the carriers. Upon the whole they probably entailed some reductions in revenues. The present live stock rates in the West represent perhaps a net average increase of about 40 or 50 per cent above what they were 30 years ago. The following table, showing the relationship of freight rates to market prices on the cattle moving into Kansas City in 1899 and 1925, is interesting:

	1899	1925
Market price at Kansas City .....	\$5.35	\$10.94
Average freight Rate to Kansas City....	20.875 cents	29.625 cents
Relationship freight rate to market price	3.9 per cent	2.7 per cent
Percentage of increase in market price		104.5 per cent
Percentage of increase in freight rates		41.9 per cent

Defendants contend that their present rates on live stock are even below the cost of the service and are casting a burden on other traffic. In this connection they offer the results of a special study which was based on data furnished by the 27 western carriers above referred to. From the total expenses of freight operation for these carriers in 1923, determined according to the commission's formula, were deducted the platform and clerical expenses chargeable to less-than-carload traffic, leaving an amount representing only the hauling expenses of less-than-carload traffic and the total expenses of carload traffic. With this as a basis it was determined that the average expense per loaded car-mile, excluding the less-than-carload terminal costs, was 21.3 cents, or substantially equal to the average car-mile revenue for these carriers on live stock, which as above stated, was 21.57 cents per car-mile. The average revenue per loaded car-mile for all traffic was 29 cents.

The above study assumes that the expenses incident to this traffic are the same as on all carload traffic. However, as has already been made clear, the live stock traffic, due to its inherent nature, and the special facilities, expedited movement and empty car mileage necessary, entails much more expense than carload traffic in general. Defendants contend that the expense is greater by at least 20 per cent. On this basis, which appears reasonable, the car-mile expenses on live stock, instead of being 21.3 cents as on other carload traffic, are 25.56 cents, or about 4 cents per car-mile in excess of the car-mile revenue derived, to say nothing of interest on investment. Under the Hoch-Smith resolution agricultural products, including live stock, are entitled to rates just as little above the cost of the service as is compatible with the maintenance of adequate transportation, and rates on other traffic may have to bear the balance of the burden necessary to a proper return on the values of the carriers' properties, but if the rates are non-compensatory, any governmental action requiring their reduction or even their continuance would amount to confiscation, be violative of the Federal constitution, and, therefore, null and void.

### Effect of a Reduction on Revenues

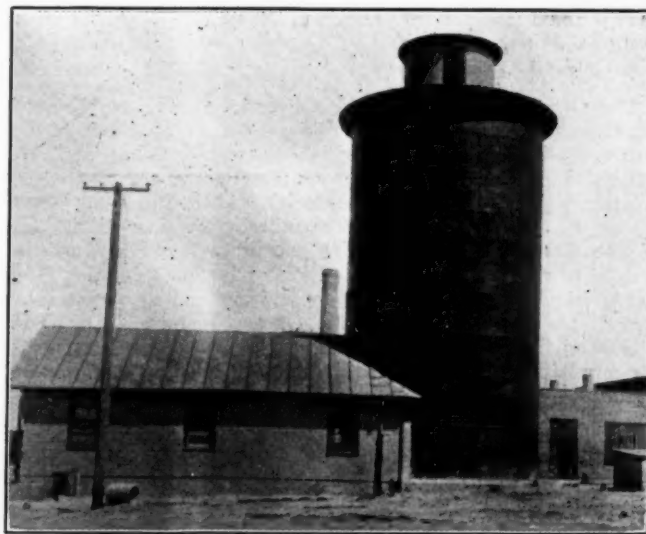
Defendants urge that they are in no financial condition to stand any drains on their revenue resources. They have not for years past earned what Congress, the courts, and this commission have declared to be reasonable returns on their book values or their values as estimated by this commission. It is an interesting, if not a significant, fact that most of the principal carriers of live stock are in particularly poor financial condition.

According to defendants' estimate the reductions sought, averaging about 33½ per cent, would mean a loss to them of

something like \$25,000,000 per annum. This loss would fall with particular weight on the carriers in the Central West, that is, those serving that portion of the country embraced by the state of Illinois, Wisconsin, Iowa, Missouri, Nebraska, Kansas, eastern Colorado and adjacent territory. Among these carriers are numbered the Chicago & North Western, the Chicago, St. Paul, Minneapolis & Omaha, the Chicago Great Western, the Chicago, Milwaukee & St. Paul, the Chicago, Rock Island & Pacific, the Chicago & Alton, the Chicago, Burlington & Quincy, the Omaha & Kansas City, the Minneapolis & St. Louis and the Union Pacific. Most of these carriers obtain from about 6 to 10 per cent of their revenue from live stock, and the reductions sought would be very serious. For some they would be almost disastrous, being sufficient to impair materially their ability to pay their fixed charges. Several of them are now in receivers' hands and several others have recently passed through receiverships. The reductions sought, if applied to the 1923 traffic of the Chicago & North Western, would have resulted in a loss to that carrier of \$3,346,421, equivalent to 21.2 per cent of the total net operating income. For many years prior to 1921 the Chicago & North Western paid 7 per cent on its common stock. The distribution was reduced to 5 per cent in 1921 and to 4 per cent in 1922, which has been since maintained. The reduction in rates sought would have prevented the payment of any of the 4 per cent dividend in 1922 or perhaps, in any other year since 1922, rendering this carrier's bonds illegal investments for savings banks, trust companies and insurance companies in many states where they are now held by such institutions. The reductions contended for, coupled with the rate reductions required in other cases and with certain wage increases made in 1925, would, if effective during 1925, have put the Chicago & North Western on the verge of a receivership.

In view of their evidence to the effect that the present rates are non-compensatory, defendants ask that they be authorized and directed to make an increase of at least 20 per cent in their live stock rates, contending that they are entitled to it as a matter of right under the constitution and that it is necessary to satisfy the requirements of those provisions of the interstate commerce act and the Hoch-Smith resolution which contemplate the removal of all unlawful preferences and discriminations. To prove with mathematical exactness the extent to which the rates under consideration may be non-compensatory is impossible, but the record establishes to a reasonably satisfactory degree that in the aggregate they are below the cost of the service to the extent claimed. Whether the present rates are non-compensatory everywhere in the West or only in certain sections does not appear. Instead of the horizontal increase proposed by defendants, it may be more appropriate that such increases as may be made be placed where they are particularly needed to bring the rates to a proper and more uniform level. The rates in the Central West, for instance, where the live stock movement is heaviest and where the principal carriers that are in poor financial condition have their principal lines, are considerably lower than in the Southwest. This matter may also be considered in Ex Parte No. 87, *Revenues in Western District and Docket No. 17,000, Rate Structure Investigation*, now pending.

The record establishes that the rates assailed as a whole are not unreasonable.



M-K-T Water Treating Plant at Oklahoma City

## General News Department

**President Calles**, of Mexico, in his message to the opening session of the national congress, reporting on the National Railways, said that reductions in wages of the employees and of the number of employees are expected to result in a saving of approximately \$6,000,000 annually in operating expenses.

The **Interstate Commerce Commission** has denied a petition of the Chicago, Milwaukee & St. Paul for a suspension until further order of the second automatic train control order, entered January 14, 1924; but has granted another petition for an extension of time from July 1 to January 1, 1926, for the fulfillment by this road of the requirements of the first order (June 13, 1922). The commission has also postponed the effective date of the first order for the Chicago & North Western from July 1 to January 1, 1926.

**Conscription of Santa Fe trackmen**, to fight forest fires in the mountains in the vicinity of Pasadena, Cal., has been made the subject of a protest, sent to the Forestry Service, by the agent of the Atchison, Topeka & Santa Fe at Pasadena. This is expected to raise the issue of whether or not railroad employees should be exempt from such conscription. The Santa Fe agent in his protest characterized the action as "poor judgment" and said it imperiled the lives of 4,000 passengers who traveled over the lines that had been left entirely unprotected. Fifty men were conscripted by the government.

The **Northern Pacific** has filed a petition with the Tax Commission of the state of Washington, asking for a reduction of \$5,969,020 in the valuation of its property in the state as assessed for taxation purposes. The tax commission had already granted a 5 per cent reduction in the valuation and the present plea is for an addition to the earlier allowance. The point at issue is an item of \$12,291,805 which was added to the actual physical valuation at one time as a "good will" valuation. Over half of this has already been deducted. The railway maintains that the entire amount should be eliminated.

The **Soo Line Shop Employees' Association**, of the Minneapolis, St. Paul & Sault Ste. Marie, has contracted with the Metropolitan Life Insurance Company for group life, death and dismemberment, and health and accident insurance for 1,500 of its members. For life insurance, more than a million and a half dollars, in addition to a similar amount for death and dismemberment. Each member who contributes receives \$1,000 life insurance protection and \$1,000 death and dismemberment insurance. The Soo Line shops are at Minneapolis, Minn., Fond du Lac, Superior and Chippewa Falls, Wis., and Chicago, Ill.

The **Great Northern** and the Canadian Pacific, to eliminate unnecessary duplication of facilities plan to abandon certain portions of their lines in British Columbia, using each the other's lines under a joint track arrangement. The Great Northern proposes to discontinue its branch line from Grand Forks, B. C., east to Cascade, 15 miles, using instead the line of the Canadian Pacific, which parallels it. The Canadian Pacific plans to abandon the portion of its line over the Eholt grade from Grand Forks west to Midway and to operate over the Kettle Valley branch of the Great Northern. The Great Northern line from Grand Forks to Midway is several miles longer than that of the Canadian Pacific but avoids the heavy grades of the latter line.

An **injunction** to prevent the city of Minneapolis, Minn., from enforcing an ordinance to compel grade separation in the southern part of the city has been granted to the Chicago, Milwaukee & St. Paul and the Chicago, Rock Island & Pacific by the federal court at Minneapolis. The issue has been in litigation for many years and involves the question of a construction expenditure on the part of the railroads esti-

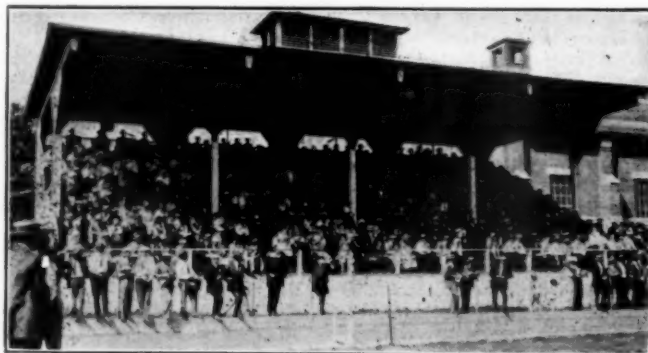
ated at \$12,000,000. Since the court stated that the injunction would be dissolved if the city could obtain an order from the railroad and warehouse commission, approving the plan of grade separation, the city is next expected to carry its appeal to the Commission.

### Comparative Statement of Operating Averages, Class I Roads

The Interstate Commerce Commission, Bureau of Statistics, has issued the third of the series of comparative statements of operating averages of Class I railroads, the first of which was for the years 1922, 1921 and 1916, covering the years 1924, 1923, 1922 and 1921. The schedule of items has been expanded in this issue to show the ratio of miles of branch lines to the total miles of road and the cost of repairs per locomotive mile and some other minor changes have been made.

### Toledo Division of Pennsylvania Wins Region Sport Title

Athletes representing the Toledo division of the Pennsylvania won first place in the Western region outdoor athletic elimination tournament at Richmond, Ind., on August 22. The Logansport division was second, the Columbus division third, and the Cincinnati division fourth. The meet, which was held on Reid field at Earlham College, was attended by approximately 3,000 employees. Nearly 500 entrants competed in the day's program. The winners will compete in the system outdoor finals at Altoona, Pa., on September 26.



Field Events Were Run Off in Front of the College Grand Stand

Both men and women participated. The events were classed as open and novice. Trial heats were held for the 100-yard dash, the 220-yard dash and the 120-yard low hurdle. Besides the track and field events there were contests in swimming, golf, horseshoes and quoits, rifle and trap shooting and tennis. Between events four bands from the Ft. Wayne, Columbus, Indianapolis and St. Louis divisions provided entertainment.

### September Meeting of New York Railroad Club

The New York Railroad Club will hold its first meeting of the new season at the Engineering Societies Building on September 18. E. F. Daley, assistant to the superintendent of motive power and equipment of the Delaware, Lackawanna & Western, will speak on "The Personnel Department and the Railroads" and Dr. S. W. Grafflin, religious work director of the West Side Y. M. C. A., New York, will deliver an address entitled "First Principles, or Good Will, Good Work, Good Wages Equals Co-operation, Production, Profits."

## REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1925

Name of road	Average mileage operated during period.	Operating revenues.			Maintenance of way and structures.			Operating expenses.			Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after remis.	Net after remis. 1924.
		Freight.	Passenger.	Total (inc. misc.).	Way and structures.	Traffic.	Trans- portation.	General.	Total.						
Akron, Canton & Youngstown.....	171	\$271,119	\$528	\$282,328	\$34,266	\$13,626	\$71,871	\$12,842	\$155,416	55.00	\$126,912	\$113,469	\$74,839	\$32,206	\$32,206
Alabama & Vicksburg.....	171	1,690,241	3,261	1,693,502	240,171	78,426	475,016	83,127	1,045,931	59.10	724,035	630,439	388,023	316,240	316,240
Albama & Vicksburg.....	141	201,657	59,731	261,388	60,290	10,726	91,991	15,525	230,274	80.40	91,991	33,465	43,275	30,469	30,469
Albama & Vicksburg.....	141	1,442,817	389,703	1,832,520	286,278	70,922	663,896	102,097	1,462,220	73.60	524,768	333,924	378,508	259,210	259,210
Vicksburg, Shreveport & Pacific.....	188	334,489	66,178	400,667	75,186	59,939	152,532	15,327	318,663	75.60	102,724	71,961	63,005	43,424	43,424
Ann Arbor.....	188	1,781,880	439,957	2,221,837	400,663	392,185	833,607	110,084	1,889,021	79.50	487,581	320,428	279,648	208,310	208,310
Ann Arbor.....	293	468,039	29,626	497,665	65,369	95,052	182,884	17,762	372,350	71.90	145,686	124,701	119,351	58,525	58,525
Ann Arbor.....	293	2,936,681	187,129	3,123,810	312,656	614,688	1,307,103	111,602	2,415,204	74.60	823,189	687,984	590,451	281,944	281,944
Atchison, Topeka & Santa Fe.....	9,186	12,347,747	3,721,093	16,068,840	2,982,220	3,106,600	5,056,868	344,829	11,781,824	68.30	5,475,356	4,215,171	4,137,667	2,978,817	2,978,817
Atchison, Topeka & Santa Fe.....	9,185	73,188,304	23,503,488	96,691,792	16,547,388	23,131,035	34,627,246	7,714,032	79,227,584	75.10	26,220,605	18,276,941	17,975,126	14,771,035	14,771,035
Gulf, Colorado & Santa Fe.....	1,908	2,033,522	282,697	2,316,219	509,110	469,949	757,880	70,316	1,853,329	76.10	580,968	491,885	357,691	359,333	359,333
Gulf, Colorado & Santa Fe.....	1,908	13,160,885	1,871,974	15,032,859	3,585,280	3,564,978	5,114,995	473,667	13,082,197	82.20	2,228,136	2,228,136	1,302,453	469,332	469,332
Panhandle & Santa Fe.....	858	693,702	127,999	821,701	114,769	166,553	241,051	20,486	549,852	63.00	323,389	283,745	238,979	130,674	130,674
Panhandle & Santa Fe.....	858	4,486,799	762,072	5,248,871	1,053,918	1,253,924	1,681,349	136,362	4,190,526	74.70	1,413,710	1,209,640	831,703	395,338	395,338
Atlanta & West Point.....	93	1,047,863	492,997	1,540,860	215,105	310,346	660,450	73,880	1,368,186	77.40	400,325	295,058	224,851	160,656	160,656
Western of Alabama.....	133	169,601	69,328	238,929	39,297	49,975	79,035	11,261	195,753	75.00	65,176	49,361	51,183	43,171	43,171
Western of Alabama.....	133	1,238,583	453,555	1,692,138	249,415	351,640	77,847	74,489	1,346,403	72.00	522,605	411,103	390,477	320,797	320,797
Atlanta, Birmingham & Atlantic.....	639	360,036	52,035	412,071	36,076	100,428	166,128	16,208	394,010	88.80	49,637	36,678	9,239	7,654	7,654
Atlanta, Birmingham & Atlantic.....	639	2,503,124	279,604	2,782,728	584,090	675,336	1,642,499	116,775	2,738,808	91.20	266,103	173,929	15,288	16,824	16,824
Atlantic Coast Line.....	4,892	4,158,605	1,414,645	5,573,250	932,322	1,539,689	2,448,017	150,435	5,033,740	83.20	1,013,033	611,803	624,719	125,132	125,132
Atlantic Coast Line.....	4,882	37,728,163	12,038,879	49,767,042	6,272,172	9,835,953	17,945,376	1,086,720	36,590,383	68.00	17,245,570	13,784,724	12,399,248	10,832,909	10,832,909
Charleston & Western Carolina.....	342	239,204	26,745	265,949	41,076	113,532	6,977	223,698	6,977	80.00	55,544	35,895	29,501	27,842	27,842
Charleston & Western Carolina.....	342	2,153,958	176,897	2,330,855	446,090	297,787	511,114	47,048	1,759,550	72.20	678,356	537,947	424,995	206,446	206,446
Baltimore & Ohio.....	5,292	16,162,928	2,529,225	18,692,153	2,235,637	3,691,168	6,775,015	535,379	14,527,128	72.60	5,496,437	4,645,576	4,197,143	3,480,654	3,480,654
Baltimore & Ohio.....	5,292	105,265,164	15,681,234	120,946,398	15,139,072	2,635,712	47,388,456	3,636,633	101,370,812	78.10	28,441,212	22,506,363	19,915,555	19,248,131	19,248,131
Baltimore & Ohio.....	80	.....	.....	.....	31,076	1,905	157,423	11,120	259,140	83.30	51,936	9,108	104,127	47,025	47,025
Staten Island Rapid Transit.....	23	102,956	165,074	268,030	62,071	30,393	128,011	15,093	238,209	76.50	73,148	56,944	41,385	27,398	27,398
Staten Island Rapid Transit.....	23	680,318	812,303	1,492,621	320,882	218,284	870,821	102,284	1,526,527	90.90	152,555	42,178	64,605	147,953	147,953
Bangor & Aroostook.....	616	254,929	42,622	297,551	113,112	4,797	115,896	26,625	369,284	116.00	50,855	75,051	37,118	15,234	15,234
Bangor & Aroostook.....	616	3,618,561	389,820	4,008,381	748,557	815,617	1,447,231	160,463	2,917,513	69.70	1,270,201	904,087	1,068,581	969,932	969,932
Belt Ry. Co. of Chicago.....	32	.....	.....	.....	74,159	57,218	241,498	9,602	385,935	65.50	203,165	158,197	131,285	131,971	131,971
Belt Ry. Co. of Chicago.....	32	.....	.....	.....	3,908,358	378,367	4,286,725	72,544	2,669,336	68.70	1,231,044	922,778	895,028	949,563	949,563
Besemer & Lake Erie.....	228	1,699,275	21,486	1,720,761	127,498	357,121	4,452	392,651	27,830	52.40	830,288	725,783	741,595	666,115	666,115
Besemer & Lake Erie.....	228	8,609,278	124,608	8,733,886	718,133	2,571,354	96,530	2,356,992	2,217,335	66.80	2,936,750	2,365,546	2,770,793	1,463,211	1,463,211
Bingham & Garfield.....	33	55,150	118	55,268	11,250	1,220	11,674	4,857	40,525	71.70	15,962	5,600	17,361	15,086	15,086
Bingham & Garfield.....	33	359,899	356	360,255	64,439	10,029	94,587	33,103	269,468	73.20	98,826	24,877	110,237	97,166	97,166
Boston & Maine.....	2,228	4,146,363	1,867,594	6,013,957	833,534	1,358,985	2,654,899	240,039	5,189,691	75.90	1,646,543	1,889,991	1,131,228	733,087	733,087
Boston & Maine.....	2,258	28,283,204	11,189,040	39,472,244	5,921,395	9,357,188	18,774,346	1,672,431	36,323,063	80.70	8,691,994	6,880,399	5,281,984	4,030,508	4,030,508
Brooklyn Eastern Dist. Terminal.....	9	120,316	.....	120,316	9,362	350	43,727	5,632	73,404	58.10	53,009	43,970	44,909	35,942	35,942
Buffalo & Susquehanna R. R. Corp.....	7 mos.	786,966	833,562	1,620,528	54,713	103,202	2,045	494,625	37,791	113.10	338,917	287,627	292,676	295,930	295,930
Buffalo & Susquehanna R. R. Corp.....	7 mos.	99,793	3,210	1,008,065	36,370	43,572	34,071	8,045	122,863	113.10	14,198	17,598	10,314	8,251	8,251
Buffalo & Susquehanna R. R. Corp.....	253	906,800	29,773	936,573	222,002	363,160	13,092	305,715	65,852	101.00	6,225	30,048	112,772	88,054	88,054
Buffalo, Rochester & Pittsburgh.....	601	1,252,347	131,288	1,383,635	211,113	376,042	29,064	41,171	1,172,548	80.80	277,741	242,735	244,824	222,851	222,851
Buffalo, Rochester & Pittsburgh.....	601	7,485,832	844,850	8,330,682	1,039,913	2,580,737	3,620,650	287,823	7,571,206	86.10	1,219,891	974,655	1,073,316	1,221,527	1,221,527
Canadian Pacific Lines in Maine.....	233	82,346	29,421	111,767	72,468	25,571	61,195	3,747	107,626	134.30	43,009	54,009	60,505	169,046	169,046
Canadian Pacific Lines in Maine.....	233	1,156,622	206,815	1,363,437	500,386	326,974	33,194	27,898	1,534,924	103.30	77,426	245,236	245,236	128,723	128,723
Central of Georgia.....	1,920	1,796,470	535,448	2,331,918	411,551	438,053	935,049	92,133	1,945,243	77.60	561,047	456,816	414,773	395,920	395,920
Central of Georgia.....	7 mos.	11,754,523	3,300,519	15,055,042	2,729,194	3,038,382	6,204,470	650,681	13,092,953	79.00	3,487,543	2,751,307	2,464,316	2,473,157	2,473,157
Central of New Jersey.....	690	3,897,953	1,096,879	4,994,832	566,277	1,075,004	1,822,331	107,694	3,639,606	68.80	1,646,821	1,247,047	1,111,388	1,365,794	1,365,794
Central of New Jersey.....	7 mos.	23,468,592	5,423,221	28,891,813	3,568,036	7,230,336	12,434,130	761,613	24,408,980	73.90	8,625,366	6,008,868	5,107,068	3,406,872	3,406,872
Central Vermont.....	434	555,510	123,160	678,670	110,511	15,649	322,517	20,772	348,947	87.10	97,179	78,088	59,143	124,833	124,833
Central Vermont.....	434	3,609,163	735,944	4,345,107	1,240,283	854,300	2,237,618	164,087	4,607,583	95.70	205,378	71,127	44,647	198,419	198,419
Chesapeake & Ohio.....	2,627	9,229,435	856,428	10,085,863	1,605,927	2,490,486	2,872,245	219,414	7,337,628	69.60	3,201,045				



## REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1925—CONTINUED

Name of road	Average income operated during period.	Operating revenues			Operating expenses			Operating ratio.	Net from railway operation	Operating income (or loss).	Net after rents, 1924.			
		Freight.	Passenger.	Total (inc. misc.)	Maintenance of way and structures.	Equip-ment.	Traffic.					Trans- portation.	General.	Total.
Grand Trunk Western.....	July 347 \$1,207,446	July 347 \$247,951	July 347 \$1,553,351	\$255,136	\$346,883	\$33,706	\$518,266	\$52,437	\$1,217,816	78.40	\$335,535	\$273,307	\$141,171	\$1,160
Atlantic & St. Lawrence.....	7 mos. 347 8,558,928	7 mos. 1,190,474	7 mos. 10,343,924	1,261,405	2,590,970	259,419	3,812,746	377,005	8,360,678	80.80	1,983,246	1,510,829	520,070	166,336
Chic., Det. & Canada Gr. Tr. Jct. ....	7 mos. 166 1,450,053	7 mos. 38,580	7 mos. 145,053	46,790	31,193	6,346	84,426	7,920	177,842	90.86	18,020	132	49,280	88,251
Det., Grand Haven & Milwaukee.....	7 mos. 166 1,149,206	7 mos. 215,117	7 mos. 1,464,323	333,431	238,890	41,160	776,708	58,518	1,460,164	98.60	20,067	96,380	530,559	781,692
Great Northern.....	July 59 1,978,832	July 59 31,809	July 59 2,010,641	40,070	10,730	4,047	80,494	3,377	138,685	56.90	105,076	97,037	72,498	15,781
Green Bay & Western.....	7 mos. 189 3,292,586	7 mos. 46,822	7 mos. 3,339,408	99,708	47,974	10,544	247,153	19,133	424,571	65.80	220,477	216,299	118,510	13,948
Gulf & Ship Island.....	7 mos. 307 2,215,889	7 mos. 44,206	7 mos. 2,260,095	88,613	44,523	7,318	93,725	12,578	209,800	74.30	72,446	20,876	13,801	30,387
Gulf, Mobile & Northern.....	7 mos. 307 1,597,410	7 mos. 273,676	7 mos. 1,871,086	341,954	305,861	52,544	601,943	105,654	1,484,107	71.70	584,622	372,744	288,700	340,460
Hocking Valley.....	7 mos. 465 3,153,411	7 mos. 224,655	7 mos. 3,378,066	531,487	610,068	155,433	1,048,613	173,764	2,322,421	71.62	909,642	766,196	693,075	671,606
Illinois Central.....	7 mos. 348 9,299,374	7 mos. 448,552	7 mos. 10,548,010	1,138,011	3,062,150	100,023	3,161,573	280,075	7,353,133	72.60	2,512,877	2,210,549	2,041,057	2,179,349
Yazoo & Mississippi Valley.....	7 mos. 4875 9,095,187	7 mos. 2,020,856	7 mos. 11,916,043	2,738,241	2,738,241	211,706	4,188,884	313,921	9,546,736	80.00	2,391,707	1,971,504	1,656,883	1,510,685
Illinois Central Combined Report.....	7 mos. 4,875 14,022,274	7 mos. 84,924,778	7 mos. 12,096,922	19,253,257	19,253,257	1,496,506	30,806,472	2,252,675	56,159,534	77.90	18,765,424	12,571,138	12,535,289	13,836,467
Kansas City, Mexico & Orient.....	7 mos. 272 186,606	7 mos. 9,614	7 mos. 196,220	50,672	53,756	5,264	63,120	5,876	178,688	87.20	26,249	22,249	8,246	18,513
Kans. City, Mex. & Orient of Tex. ....	7 mos. 272 1,464,365	7 mos. 53,330	7 mos. 1,517,695	280,105	371,226	38,922	544,165	154,368	1,388,784	88.40	182,068	125,134	19,359	91,235
Kansas City Southern.....	7 mos. 465 2,376,600	7 mos. 14,205	7 mos. 2,390,805	60,557	66,719	5,281	81,374	6,039	219,956	84.60	35,904	33,048	7,513	16,081
Texarkana & Ft. Smith.....	7 mos. 161 1,754,516	7 mos. 92,272	7 mos. 1,846,788	332,986	359,213	43,194	626,641	43,012	1,464,705	76.76	146,705	394,782	245,391	77,944
Kansas, Oklahoma & Gulf.....	7 mos. 773 1,235,065	7 mos. 151,127	7 mos. 1,386,192	250,255	250,255	47,265	483,896	76,009	1,091,172	70.90	450,565	356,468	323,776	227,145
Lake Superior & Ishpeming.....	7 mos. 773 8,323,766	7 mos. 913,393	7 mos. 9,237,103	1,898,601	1,898,601	311,591	3,445,017	526,826	7,454,586	73.00	2,756,535	2,093,012	1,896,005	1,599,848
Lake Terminal.....	7 mos. 81 2,311,811	7 mos. 12,388	7 mos. 2,324,199	25,242	33,998	7,706	80,402	12,236	162,470	62.80	96,335	80,416	45,345	83,025
Lehigh & Hudson River.....	7 mos. 81 1,527,311	7 mos. 78,278	7 mos. 1,605,589	205,055	159,739	40,974	500,044	67,961	1,194,301	56.80	745,068	637,858	456,145	531,478
Lehigh & New England.....	7 mos. 314 2,215,637	7 mos. 7,902	7 mos. 2,223,539	48,706	35,434	8,679	82,282	18,908	194,100	82.70	40,591	31,638	20,726	705
Lehigh Valley.....	7 mos. 314 1,551,768	7 mos. 51,162	7 mos. 1,602,930	371,171	254,918	58,747	498,676	70,182	1,223,498	98.50	19,063	37,955	162,091	57,046
Louisiana & Arkansas.....	7 mos. 161 953,550	7 mos. 26,335	7 mos. 980,885	238,106	179,393	3,307	309,115	3,764	765,591	70.70	317,592	225,203	200,730	102,218
Louisiana Ry. & Nav. Co. of Tex. ....	7 mos. 206 96,732	7 mos. 9,356	7 mos. 106,088	16,269	17,320	68,799	99,196	1,228	99,196	97.50	2,545	37,955	901	16,521
Louisville & Nashville.....	7 mos. 206 615,719	7 mos. 55,479	7 mos. 671,198	137,145	114,308	21,716	335,974	38,768	647,911	90.70	66,624	38,689	6,669	91,699
Louisville, Henderson & St. Denis.....	7 mos. 5,044 9,050,043	7 mos. 1,955,991	7 mos. 11,006,034	1,737,694	2,628,465	222,047	3,882,770	305,712	8,812,285	75.70	2,827,435	2,254,032	2,275,989	1,727,399
Maine Central.....	7 mos. 1,207 8,310,879	7 mos. 2,777,564	7 mos. 11,088,443	1,670,208	1,552,871	95,718	4,648,115	1,965,148	6,613,263	78.60	16,919,938	13,395,911	13,412,009	10,190,748
Midland Valley.....	7 mos. 364 342,874	7 mos. 39,083	7 mos. 381,957	59,504	68,882	6,265	99,303	20,257	236,094	59.50	160,410	143,501	127,956	53,496
Minneapolis & St. Louis.....	7 mos. 364 2,156,863	7 mos. 286,617	7 mos. 2,443,480	420,532	329,739	43,056	739,031	132,572	1,655,136	65.10	888,594	770,243	642,170	599,050
Minneapolis, St. F. & S. Mar. ....	7 mos. 1,338 6,859,901	7 mos. 925,399	7 mos. 7,785,300	1,098,808	252,912	31,606	519,156	44,434	1,129,644	101.90	26,836	86,917	142,016	34,804
Duluth, South Shore & Atlantic.....	7 mos. 4,400 3,122,291	7 mos. 684,462	7 mos. 3,806,753	655,851	706,152	70,644	1,484,423	117,715	3,074,218	73.20	1,244,647	855,196	780,524	454,653
Sjokane International.....	7 mos. 165 88,070	7 mos. 14,240	7 mos. 102,310	17,858	9,869	3,436	34,369	6,301	72,927	66.80	36,161	30,956	23,749	11,228
Mississippi Central.....	7 mos. 165 1,181,812	7 mos. 126,522	7 mos. 1,308,334	191,928	191,928	22,468	462,147	45,375	1,010,402	71.70	37,278	168,345	121,110	100,402
Missouri Pacific.....	7 mos. 176 783,964	7 mos. 80,322	7 mos. 864,286	120,276	155,861	49,341	250,171	60,563	636,069	70.80	262,121	185,505	219,881	259,977

## REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1925—CONTINUED

Name of road	Average mileage operated during period	Operating revenues			Operating expenses			Operating ratio	Net from railway operation	Operating income (or loss)	Net after rents, 1924.
		Freight	Passenger	Total (inc. misc.)	Way and structures	Maintenance of equip.	Traffic				
Missouri & North Arkansas, .....	July 364	\$88,991	\$19,758	\$108,749	\$20,330	\$5,938	\$5,938	94.90	\$5,961	\$3,329	—\$5,541
Missouri-Kansas-Texas, .....	7 mos. 682,153	110,331	852,997	963,328	193,697	37,091	37,091	90.70	79,070	64,759	2,042
Missouri-Kansas-Texas, .....	July 1,799	2,462,471	4,202,018	6,664,489	320,813	53,168	53,168	90.70	1,203,532	1,048,045	622,221
Mo., Kansas, Texas of Texas, .....	7 mos. 15,275,415	2,797,685	19,521,213	22,318,898	1,927,519	4,183,704	7,530,550	63.60	7,098,942	5,866,770	4,684,100
Mo., Kansas, Texas of Texas, .....	July 1,389	1,217,176	360,367	1,577,543	382,134	357,841	44,406	87.70	209,671	158,109	—54,221
Missouri Pacific, .....	7 mos. 1,389	8,646,809	2,512,668	11,159,477	2,023,782	4,867,983	4,867,983	79.20	2,531,118	2,110,751	729,380
Missouri Pacific, .....	7 mos. 7,337	8,654,749	1,473,176	10,127,925	1,884,454	2,066,821	3,951,275	78.90	2,304,938	1,880,525	1,465,607
Gulf Coast Lines, .....	July 1,159	919,832	184,776	1,104,608	1,011,457	14,966,548	1,797,678	80.00	14,703,946	11,873,005	8,717,295
International-Great Northern, .....	7 mos. 1,159	7,231,635	1,254,645	8,486,280	1,895,787	1,673,558	2,569,345	83.28	1,569,999	1,316,707	843,551
Texas & Pacific, .....	July 1,952	1,967,668	531,915	2,499,583	432,328	591,449	65,151	79.90	539,832	387,328	339,374
Mobile & Ohio, .....	7 mos. 1,952	13,556,273	3,659,364	17,215,637	2,865,500	3,894,547	439,112	79.60	3,810,284	2,778,725	1,898,478
Monongahela, .....	July 1,161	1,263,103	127,378	1,390,481	225,396	227,891	48,464	71.50	417,452	333,635	314,086
Monongahela, .....	7 mos. 1,161	9,161,569	904,845	10,066,414	1,556,347	1,913,272	347,307	74.20	2,756,385	2,136,780	1,818,076
Montour, .....	July 129	463,867	22,255	486,122	62,500	55,000	1,011	50.00	244,877	210,877	150,534
Montour, .....	7 mos. 131	2,887,378	169,918	3,057,296	437,500	445,000	8,300	57.60	1,307,358	1,177,007	769,982
Monongahela Connecting, .....	July 7	.....	.....	.....	139,176	15,747	375	84.90	21,034	16,791	13,638
Monongahela Connecting, .....	7 mos. 7	.....	.....	.....	1,283,041	144,196	2,644	85.30	188,822	156,205	149,580
Montour, .....	July 57	57,875	196	58,071	20,101	31,742	954	122.50	—13,318	—16,073	12,356
Nashville, Chattanooga & St. Louis, .....	7 mos. 57	601,190	4,355	605,545	137,158	280,572	6,771	104.00	—24,369	—55,283	163,233
Nashville, Chattanooga & St. Louis, .....	7 mos. 1,259	1,427,509	400,498	1,828,007	243,785	390,347	75,386	75.70	475,535	415,509	430,744
Nevada Northern, .....	July 165	73,454	9,295	82,749	22,524	5,773	1,002	82.40	2,379,563	1,958,305	1,837,213
Newburgh & South Shore, .....	7 mos. 165	492,763	64,535	557,298	153,830	30,137	6,440	56.80	38,711	28,232	29,584
New Orleans Great Northern, .....	July 274	205,484	33,281	238,765	35,813	40,710	6,823	66.70	82,540	62,492	53,778
New York Central, .....	7 mos. 274	1,411,790	184,028	1,595,818	257,734	281,569	45,166	72.60	482,923	341,148	272,511
New York Central, .....	7 mos. 6,922	19,121,823	3,386,727	22,508,550	4,466,118	6,988,424	416,777	73.60	8,898,923	6,782,342	6,423,745
Cincinnati Northern, .....	July 244	360,607	10,092	370,699	51,351	61,400	6,447	75.00	53,819,050	38,817,330	36,944,758
Cleve., Cin., Chic., & St. Louis, .....	7 mos. 244	2,435,626	59,451	2,495,077	311,276	444,552	42,857	64.40	136,128	112,705	67,539
Indiana Harbor Belt, .....	July 116	.....	.....	.....	1,051,567	1,494,021	135,051	64.40	1,903,784	1,479,462	1,266,512
Michigan Central, .....	7 mos. 116	5,200,500	2,031,306	7,231,806	6,002,712	10,305,661	1,697,425	74.00	13,264,952	10,186,427	9,278,327
Pittsburgh & Lake Erie, .....	July 231	2,135,700	271,061	2,406,761	424,960	691,026	79,251	69.60	274,130	232,858	151,489
New York, Chicago & St. Louis, .....	7 mos. 231	16,198,245	1,710,650	17,908,895	2,516,996	5,660,439	34,283	70.10	1,862,656	1,597,821	934,422
New York, New Haven & Hartford, .....	July 231	3,987,096	201,981	4,189,077	4,350,018	6,457,272	129,376	70.10	1,903,784	1,479,462	1,266,512
Central New England, .....	7 mos. 1,695	28,664,436	1,094,444	29,758,880	4,033,551	5,634,518	853,671	69.90	13,442,826	11,655,590	884,733
New York Connecting, .....	July 20	197,760	.....	197,760	215,632	13,278	49,787	41.40	126,373	89,973	92,320
New York, Ontario & Western, .....	7 mos. 20	1,373,916	677,741	2,051,657	1,559,447	102,866	34,773	41.40	1,019,163	738,763	681,117
Norfolk & Western, .....	July 569	845,073	1,461,785	2,306,858	230,470	268,134	15,810	62.80	1,446,981	1,195,556	860,761
Norfolk Southern, .....	7 mos. 569	4,303,695	589,311	4,892,996	1,041,275	1,542,339	253,171	81.20	1,446,981	1,195,556	860,761
Norfolk Southern, .....	7 mos. 2,241	8,018,220	682,499	8,700,719	1,287,541	2,162,126	97,263	66.20	3,038,800	2,387,968	2,622,105
Norfolk Southern, .....	7 mos. 2,240	49,666,942	4,566,978	54,233,920	7,716,043	12,943,480	682,901	68.00	17,937,623	13,685,106	14,970,521
Norfolk Southern, .....	7 mos. 931	579,750	107,585	687,335	107,694	107,160	24,359	75.10	179,050	133,411	110,764
Norfolk Southern, .....	7 mos. 931	4,303,695	589,311	4,892,996	708,688	755,291	164,015	75.10	1,291,208	970,603	719,942
Norfolk Southern, .....	7 mos. 6,698	5,799,628	1,483,557	7,283,185	1,230,209	1,274,362	212,556	72.80	2,198,079	1,510,717	1,750,817
Northwestern Pacific, .....	7 mos. 6,694	37,862,284	7,652,373	45,514,657	7,911,400	10,169,205	1,277,813	80.80	9,610,552	7,092,266	6,256,747
Northwestern Pacific, .....	7 mos. 496	4,067,739	562,941	4,630,680	740,560	95,558	29,749	90.50	292,383	251,154	284,003
Northwestern Pacific, .....	7 mos. 489	2,168,187	1,249,074	3,417,261	652,106	577,773	47,114	78.30	822,788	504,462	434,567

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1925--CONTINUED

Name of road	Average mileage operated during period.	Operating revenues			Maintenance of			Operating expenses			Operating income (or loss).	Net after railway operation.	Net after rents, 1924.			
		Freight.	Passenger.	Total (inc. milc.)	Way and structures.	Equip-ment.	Traffic.	Trans- portation.	General.	Total.						
Pennsylvania R. R.	10,507	\$39,827,075	\$12,323,290	\$57,181,073	\$6,947,018	\$12,834,986	\$692,392	\$19,937,837	\$1,522,970	\$42,587,020	74.50	\$14,594,053	\$11,033,955	\$10,132,982	\$5,585,223	
.....	7 mos.	10,507	258,529,108	82,321,025	374,950,003	46,479,118	93,703,753	4,667,864	140,853,445	10,602,684	301,132,871	80.30	73,707,132	55,553,583	47,193,933	43,571,933
Baltimore & Atlantic.	130	118,417	59,801	185,101	14,829	26,561	2,937	90,499	3,184	138,071	74.60	37,707,091	33,010	36,186	39,046	
.....	7 mos.	130	536,513	222,053	804,873	94,265	253,599	14,440	544,661	24,435	931,400	115.70	-126,527	-149,871	-154,929	-68,920
Long Island .....	397	944,658	2,818,627	3,857,935	389,898	500,983	29,706	1,109,966	65,693	3,107,189	54.20	7,907,746	1,459,578	1,289,974	690,012	
.....	7 mos.	397	6,006,969	13,549,633	20,951,023	2,760,125	3,485,403	162,880	8,734,731	499,750	15,705,740	75.00	5,295,330	4,269,501	3,440,330	2,145,246
West Jersey & Seashore .....	361	1,134,422	1,117,550	1,631,680	152,523	187,694	21,621	564,230	29,981	957,176	58.70	674,504	434,212	407,615	211,877	
.....	7 mos.	361	2,783,516	4,273,469	7,482,253	1,128,958	1,139,033	110,418	3,338,109	185,976	5,906,727	78.90	1,575,526	1,106,704	928,189	311,964
Peoria & Pekin Union .....	19	19,663	1,474	135,010	30,518	14,534	778	54,840	8,334	109,004	80.70	26,006	10,006	33,717	21,386	
.....	7 mos.	19	176,131	21,298	176,235	156,292	121,088	5,826	479,243	50,387	819,387	76.30	253,848	141,848	291,265	307,088
Pere Marquette .....	2,263	2,648,200	509,285	3,401,509	457,655	363,348	51,682	1,181,174	101,287	2,489,638	73.20	911,875	722,336	606,893	790,081	
.....	7 mos.	2,263	18,742,783	2,496,367	22,811,121	2,796,467	5,149,669	364,009	8,370,770	707,391	17,423,975	76.30	5,417,146	4,365,454	3,779,110	3,269,188
Fittsburgh & Shawmut .....	102	97,255	2,201	101,357	15,135	32,060	1,396	27,778	7,036	83,405	82.30	17,952	9,457	15,131	14,452	
.....	7 mos.	102	647,819	31,357	697,933	99,303	230,452	207,078	47,276	594,683	85.70	99,235	78,902	117,130	48,866	
Pittsburgh & West Virginia .....	92	373,917	6,564	413,057	43,964	103,225	6,241	75,380	16,772	256,076	62.00	156,981	107,618	177,446	129,084	
.....	7 mos.	92	2,410,156	51,112	2,699,196	280,997	661,523	42,148	525,316	125,770	1,715,765	63.60	-60,793	-1,435	-13,740	-29,292
Pittsburgh, Shawmuth & Northern .....	210	137,164	2,213	143,508	28,981	34,599	1,456	51,857	5,263	121,356	84.60	22,152	19,523	10,638	-4,749	
.....	7 mos.	210	970,034	12,640	1,018,682	170,496	247,561	13,172	370,163	4,159	845,581	81.00	173,091	154,237	110,951	67,603
Quincy, Omaha & Kansas City .....	250	62,326	22,601	82,209	32,943	14,851	802	37,546	4,909	89,504	108.30	-1,701	-1,435	-1,740	-29,292	
.....	7 mos.	250	345,591	112,340	508,997	188,480	97,686	5,592	300,171	19,441	609,195	119.70	-100,198	-132,623	-153,540	-113,760
Reading Co. ....	1,139	6,850,540	810,142	7,963,367	1,158,890	1,759,695	75,220	2,722,604	171,161	5,587,618	73.90	2,074,719	1,705,371	1,807,991	1,494,779	
.....	7 mos.	1,139	45,638,153	5,786,056	53,889,874	6,866,137	12,442,086	496,766	16,720,518	1,250,720	40,757,681	75.60	13,444,893	10,574,271	11,330,348	9,990,344
Atlantic City .....	169	339,897	603,732	783,895	69,369	36,261	15,836	15,920,373	4,318	3,369,339	50.80	386,130	363,419	316,416	239,856	
.....	7 mos.	169	933,071	1,713,836	2,761,534	621,445	280,740	55,761	1,394,466	36,928	2,359,507	86.30	371,627	212,734	7,852	-203,481
Perkiomen .....	41	105,362	8,059	116,468	9,333	5,792	106	52,380	889	68,534	58.80	47,934	42,766	37,403	37,541	
.....	7 mos.	41	620,581	74,436	67,526	37,226	755	32,808	5,590	437,225	58.50	310,211	273,975	236,800	218,774	
Port Reading .....	19	165,323	43,054	243,054	30,240	3,575	223	32,528	1,439	36,582	40.40	144,472	129,109	70,130	7,235	
.....	7 mos.	19	1,043,343	.....	1,410,988	165,596	53,758	1,603	471,789	18,363	711,273	50.60	695,719	587,919	107,318	-1,355
Richmond, Fredericksburg & Potomac .....	117	541,334	296,069	900,554	123,530	144,078	9,581	328,172	35,756	661,035	66.70	329,519	271,336	230,497	203,787	
.....	7 mos.	117	3,746,118	2,573,137	7,586,890	1,128,959	62,701	2,121,157	241,640	4,812,157	63.50	2,761,980	2,321,754	1,872,045	1,637,174	
Rutland .....	413	2,199,463	681,433	3,056,667	692,582	757,792	8,888	2,121,153	12,531	4,590,088	76.60	140,640	107,514	111,484	80,095	
.....	7 mos.	413	6,814,334	2,199,463	681,433	3,056,667	692,582	757,792	8,888	2,121,153	76.60	140,640	107,514	111,484	80,095	
St. Louis-San Francisco .....	4,902	5,591,295	1,497,456	7,550,321	965,976	1,335,641	120,303	2,399,462	224,780	5,234,393	69.30	2,315,828	1,917,247	1,845,700	1,615,973	
.....	7 mos.	4,902	36,570,338	9,389,773	49,930,445	5,829,941	9,630,445	713,885	16,998,991	1,611,084	34,308,576	70.60	14,499,659	11,922,809	11,714,432	10,430,954
Ft. Worth & Rio Grande .....	233	67,124	20,546	56,931	24,109	22,238	3,331	35,210	4,682	107,571	110.80	-10,640	-14,679	-24,637	10,388	
.....	7 mos.	233	557,672	131,020	767,137	155,270	158,948	23,566	385,347	753,755	99.80	1,382	-26,967	-91,642	-3,309	
St. Louis, San Francisco & Tex. ....	137	163,932	12,438	182,098	35,486	28,718	4,868	61,653	6,767	137,492	75.50	44,606	42,096	15,886	18,722	
.....	7 mos.	137	1,065,997	88,329	1,193,821	185,945	197,683	34,903	50,455	307,381	75.20	296,340	329,289	104,113	23,780	
St. Louis Southwestern .....	944	3,149,665	125,904	1,346,741	167,132	314,942	35,975	345,975	66,875	963,586	71.40	385,155	337,887	283,247	287,522	
.....	7 mos.	944	8,667,367	865,738	10,089,269	1,399,971	2,211,093	337,229	2,536,766	434,451	7,059,551	70.10	3,019,718	2,649,783	2,113,526	2,046,731
St. Louis Southwestern of Texas .....	807	478,060	69,443	589,481	187,388	162,173	23,870	242,365	29,454	647,268	109.90	-58,287	-85,490	-39,929	41,450	
.....	7 mos.	807	3,413,766	486,867	4,223,055	1,059,581	1,212,572	159,810	1,795,151	220,634	4,476,856	104.60	-193,801	-383,059	-60,161	-36,329
San Antonio Uvalde & Gulf, .....	318	85,902	15,394	110,958	20,644	11,471	3,424	45,729	5,807	87,992	79.10	23,166	19,372	13,421	4,168	
.....	7 mos.	318	709,082	111,224	897,784	147,813	103,471	360,726	44,474	606,080	76.90	207,704	181,644	108,607	63,640	
Seaboard Air Line .....	3,778	3,167,917	903,150	4,488,814	540,796	725,839	174,397	1,711,844	172,090	3,391,513	75.30	1,107,301	876,699	800,965	564,187	
.....	7 mos.	3,778	24,514,747	6,631,680	34,626,305	4,450,919	5,708,351	1,194,307	13,172,845	1,213,404	28,247,248	75.80	8,370,057	6,778,801	5,678,992	5,192,517
Southern Ry. ....	7 mos.	6,868	8,634,941	2,664,507	12,449,032	1,832,769	2,218,577	2,245,537	3,943,844	326,972	8,644,840	71.20	3,304,192	2,766,987	2,738,926	2,105,215
.....	7 mos.	6,868	59,574,531	17,148,288	83,147,861	12,220,614	14,923,069	1,665,756	28,616,850	2,219,695	60,248,878	72.50	22,898,983	17,964,727	17,331,390	14,588,372
Alabama Great Southern .....	318	601,102	188,533	838,443	156,987	171,727	20,174	246,022	24,264	625,974	74.70	212,469	152,528	179,476	158,660	
.....	7 mos.	318	4,073,758	1,116,899	5,831,881	886,923	1,131,931	142,970	1,803,292	168,986	4,177,467	71.60	1,654,414	1,296,757	1,423,435	1,204,446
Cin., New Orleans & Tex. Pacific .....	338	1,531,487	339,439	1,968,286	247,745	341,694	39,797	516,021	48,537	1,206,442	60.70	781,844	672,564	636,840	428,849	
.....	7 mos.	338	10,113,399	2,432,561	13,273,725	1,797,247	2,346,822	280,697	3,726,634	350,207	8,616,824	64.90	4,656,901	3,968,842	3,836,975	2,929,173
Georgia Southern & Florida .....	401	379,902	171,749	584,481	66,530	76,422	10,502	197,273	10,391	364,065	62.30	220,416	186,138	152,436	71,218	
.....	7 mos.	401	2,237,674	988,216	3,495,032	451,782	438,706	72,210	1,211,233	73,869	2,304,976	66.00	1,990,046	747,803	999,289	299,270
New Orleans & Northeastern .....	207	353,760	55,690	405,690	62,474	81,170	11,612	128,743	14,431	302,365	64.00	169,958	112,350	93,102	103,042	
.....	7 mos.	207	2,548,263	554,101	3,326,562	421,268	514,175	81,941	966,822	104,730	2,120,346	63.70	1,206,156	852,614	729,729	663,832
Northern .....	110	11,669	9,373	124,096	24,703	4,866	2,080	37,617	2,750	72,064	58.10	52,032	44,902	17,668	2,442	
.....	7 mos.	110	793,592	70,233	884,502	135,391	33,184	15,180	268,995	22,064	495,360	56.00	389,202	341,307	146,291	131,473
Southern Pacific .....	7 mos.	8,722	12,390,402	4,029,750	18,187,142	2,111,382	2,840,342	301,933	6,560,228	652,018	13,126,588	72.20	5,060,983	3,683,995	3,237,989	3,765,307
.....	7 mos.	8,722	78,622,234	24,945,882	114,795,306	17,097,882	20,436,727	2,178,961	42,505,229	3,997,514	87,714,844	76.40	27,087,084	17,617,264	16,372,744	20,772,588

## REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1925—CONTINUED

Name of road	Average mileage operated during period	Operating revenues			Maintenance of way and structures			Operating expenses			Operating ratio	Net from railway operation	Operating income (or loss)	Net after rents	Net after taxes, 1924
		Freight	Passenger	Total (inc. misc.)	Way and structures	Equip-ment	Traffic	Trans-portion	General	Total					
Atlantic Steamship Lines	..... July	\$738,263	\$35,797	\$874,060	\$17,380	\$335,134	\$15,825	\$576,744	\$28,121	\$973,204	109.60	—\$3,214	—\$99,754	—\$99,885	—\$72,947
Galv., Harrisburg & S. Antonio	..... 7 mos.	5,229,405	303,447	5,532,852	11,027	1,528,539	130,244	4,763,714	211,274	6,744,798	104.30	—276,063	—378,302	—379,939	—54,266
Galv., Harrisburg & S. Antonio	..... 7 mos.	1,695,118	435,402	2,130,520	431,102	1,476,632	48,115	819,802	116,100	1,911,644	83.80	368,712	278,437	212,733	545,339
Galv., Harrisburg & S. Antonio	..... 7 mos.	12,319,627	2,994,662	15,314,289	3,224,636	3,618,790	381,777	5,979,097	804,886	14,170,035	86.30	2,258,824	1,665,649	1,162,879	2,038,585
Houston & Texas Central	..... July	741,687	244,091	985,778	174,821	225,031	28,626	381,225	49,461	860,492	81.40	196,046	130,221	81,938	186,269
Houston, East & West Texas	..... 7 mos.	6,075,875	1,739,660	7,815,535	1,705,112	1,637,326	189,564	2,884,563	332,070	6,755,421	80.60	1,625,228	1,192,690	832,686	342,775
Houston, East & West Texas	..... 7 mos.	2,053,370	40,613	2,093,983	30,626	47,720	4,145	85,753	9,168	177,349	69.20	78,959	69,248	53,394	6,451
Houston, East & West Texas	..... 7 mos.	1,478,521	258,404	1,736,925	394,080	331,717	26,523	633,992	65,474	1,469,705	80.60	353,504	284,542	166,305	110,591
Louisiana Western	..... July	224,195	77,341	301,536	37,670	64,636	13,074	100,096	20,807	240,168	75.00	80,178	51,380	49,006	66,520
Morgan's L. & T. R. R. & S. S. Co.	..... 7 mos.	1,646,259	539,510	2,185,769	409,493	492,317	86,183	733,115	135,103	1,883,786	80.20	464,843	311,196	262,148	352,832
Morgan's L. & T. R. R. & S. S. Co.	..... 7 mos.	462,200	124,517	586,717	67,197	156,781	21,493	280,171	36,159	566,228	89.50	66,497	16,269	—7,217	—21,854
Morgan's L. & T. R. R. & S. S. Co.	..... 7 mos.	3,425,821	856,191	4,282,012	792,828	1,153,456	138,782	2,040,935	266,141	4,425,484	95.70	201,054	—154,571	—382,622	—483,662
Texas & New Orleans	..... July	679,091	146,503	825,594	132,299	200,021	12,841	297,171	36,238	679,694	77.70	195,315	163,157	131,948	157,561
Spokane, Portland & Seattle	..... 7 mos.	4,856,266	1,044,595	5,900,861	1,068,280	1,457,301	97,558	2,159,820	234,317	5,040,249	80.60	1,212,713	987,068	797,504	—101,413
Spokane, Portland & Seattle	..... 7 mos.	434,737	169,687	604,424	99,863	94,499	12,777	221,379	21,072	463,996	69.60	202,422	135,653	117,036	123,150
Spokane, Portland & Seattle	..... 7 mos.	2,972,981	815,841	3,788,822	538,748	745,598	74,205	1,378,663	148,266	2,942,583	69.20	1,307,202	779,774	644,329	1,033,963
Tennessee Central	..... July	225,475	37,351	262,826	44,591	38,565	7,165	93,816	11,154	195,249	70.40	81,907	72,100	49,423	17,756
Tennessee Central	..... 7 mos.	1,406,943	251,454	1,658,397	305,820	292,513	51,290	643,588	79,688	1,363,412	77.10	403,449	358,205	218,031	240,012
Terminal Railroad Ass. of St. L.	..... 7 mos.	.....	.....	410,370	55,533	46,912	1,042	138,111	7,833	352,865	61.60	157,511	88,369	183,661	122,417
Terminal Railroad Ass. of St. L.	..... 7 mos.	.....	.....	2,913,203	458,734	301,088	6,803	1,063,990	60,311	1,916,679	65.80	996,524	553,185	1,246,944	955,621
East St. Louis Connecting	..... July	.....	.....	175,695	18,066	10,317	310	59,855	2,417	90,985	51.80	84,710	85,092	65,174	39,123
East St. Louis Connecting	..... 7 mos.	.....	.....	1,297,540	153,991	79,565	2,131	483,812	20,244	738,733	56.90	558,807	524,795	378,604	333,585
St. L. Merchants Bridge Term.	..... 7 mos.	.....	.....	327,006	73,416	25,350	997	161,931	8,955	270,679	99.00	121,927	82,856	103,246	18,743
St. L. Merchants Bridge Term.	..... 7 mos.	.....	.....	2,754,036	530,982	186,489	6,433	1,245,213	55,157	2,024,274	73.30	725,762	555,123	544,909	315,686
St. Louis Transfer Ry.	..... July	.....	.....	60,664	11,097	4,712	178	29,609	1,176	46,772	77.10	13,892	13,509	8,035	5,074
St. Louis Transfer Ry.	..... 7 mos.	.....	.....	452,939	72,216	37,082	1,159	251,017	10,878	377,352	83.30	75,587	72,793	31,888	5,940
Toledo, Peoria & Western	..... July	.....	.....	131,069	44,141	25,491	1,360	65,362	7,779	145,333	110.90	—14,264	—20,269	—30,480	—16,320
Toledo, Peoria & Western	..... 7 mos.	.....	.....	905,968	178,135	268,226	15,940	480,446	49,905	992,632	109.60	—86,664	—128,721	—178,885	—231
Trinity & Brazos Valley	..... July	78,515	12,270	90,785	64,947	62,706	4,753	71,748	10,742	214,365	220.80	—117,264	—124,938	—141,747	—16,560
Trinity & Brazos Valley	..... 7 mos.	1,382,752	80,251	1,463,003	406,499	364,083	27,594	705,592	83,683	1,384,206	104.40	—67,395	—121,896	—317,609	—79,359
Ulster & Delaware	..... July	64,442	86,716	151,158	25,997	17,499	1,974	74,789	6,041	126,300	67.00	62,270	56,770	47,626	57,494
Ulster & Delaware	..... 7 mos.	380,456	165,617	546,073	132,504	128,256	13,392	386,137	43,734	704,023	89.50	82,829	44,327	14,418	44,365
Union Railroad of Penna.	..... July	.....	.....	1,009,044	111,939	215,690	203	388,079	9,489	725,400	71.90	283,644	246,567	312,498	190,973
Union Railroad of Penna.	..... 7 mos.	.....	.....	6,684,417	692,528	1,745,207	1,272	2,940,542	70,250	5,449,799	81.50	1,234,618	1,082,592	1,439,063	690,671
Union Pacific	..... 7 mos.	3,687	38,976,264	53,636,943	6,769,570	11,470,769	1,178,642	15,235,916	1,956,284	37,822,495	70.50	15,814,448	11,383,016	11,018,695	10,822,784
Oregon Short Line	..... July	1,921,322	517,302	2,438,624	686,575	512,171	46,973	833,505	84,491	2,235,054	83.10	455,380	229,119	138,474	221,868
Oregon Short Line	..... 7 mos.	13,240,502	2,731,423	16,071,925	3,204,590	3,402,307	354,968	5,611,592	743,304	13,714,390	79.00	3,640,455	1,959,830	1,673,526	2,143,046
Oregon Wash. R. R. & Nav. Co.	..... July	1,524,443	490,393	2,014,836	473,501	396,202	66,452	862,063	129,422	1,957,315	86.80	297,394	126,960	5,575	42,332
Oregon Wash. R. R. & Nav. Co.	..... 7 mos.	10,626,973	2,640,154	14,671,983	2,848,079	2,529,185	470,098	5,812,574	809,322	12,673,878	86.40	1,998,105	807,401	206,489	1,337,527
Los Angeles & Salt Lake	..... July	1,247,133	525,940	1,773,073	320,572	429,617	62,126	655,338	63,495	1,632,568	82.40	347,530	207,863	108,004	—27,370
Los Angeles & Salt Lake	..... 7 mos.	9,296,287	2,920,930	13,468,113	2,189,772	2,723,868	477,945	4,541,410	452,741	10,889,145	80.90	2,578,968	1,609,911	1,075,459	1,327,690
St. Joseph & Grand Island	..... July	210,397	16,499	226,896	59,243	71,858	3,105	93,249	12,341	239,796	96.90	7,664	1,262	—191	—191
St. Joseph & Grand Island	..... 7 mos.	1,528,710	132,215	1,770,925	343,686	345,029	20,232	664,174	84,545	1,458,169	82.00	320,899	224,345	140,609	98,477
Utah	..... July	102,474	161	102,635	17,442	33,164	399	22,521	4,881	78,407	75.90	24,862	18,751	19,813	26,463
Utah	..... 7 mos.	864,562	2,063	866,625	99,716	273,853	2,570	201,702	41,533	619,364	71.00	253,062	202,725	169,742	94,434
Virginian	..... July	1,319,559	60,935	1,380,494	278,884	338,456	13,416	349,468	35,502	1,006,084	68.00	474,278	369,976	416,278	348,987
Virginian	..... 7 mos.	9,492,942	409,484	10,661,284	1,696,308	2,412,830	90,574	2,572,552	238,066	6,961,233	65.30	3,700,051	2,890,238	3,050,207	2,721,246
Wabash	..... July	4,577,546	921,859	5,499,405	923,228	1,046,303	157,673	2,040,278	168,636	4,363,176	74.00	1,536,474	1,263,826	999,797	750,380
Wabash	..... 7 mos.	30,796,877	5,176,026	35,972,903	5,576,421	7,257,617	1,036,671	14,556,471	1,147,776	29,819,879	76.90	8,912,820	7,282,962	5,357,535	3,877,523
Western Maryland	..... July	1,503,088	70,433	1,573,521	224,506	255,769	35,451	451,112	43,539	1,133,162	67.50	451,854	438,869	429,027	429,027
Western Maryland	..... 7 mos.	10,210,723	394,641	11,149,899	1,489,713	2,398,157	261,036	3,301,264	314,967	7,882,335	70.30	3,307,544	2,862,544	2,514,558	2,037,130
Western Pacific	..... July	932,506	239,402	1,171,908	220,007	205,318	42,942	410,423	34,977	977,819	75.40	319,322	239,929	312,191	88,291
Western Pacific	..... 7 mos.	5,798,408	1,153,637	6,952,045	1,300,032	1,406,655	269,273	4,410,423	250,568	6,084,823	81.10	1,414,986	861,084	1,580,872	600,949
Wheeling & Lake Erie	..... July	1,612,145	46,004	1,658,149	266,990	362,408	28,074	483,930	54,971	1,198,114	67.60	573,709	429,987	418,235	134,123
Wheeling & Lake Erie	..... 7 mos.	10,282,663	336,614	11,316,419	1,450,799	2,665,560	203,972	3,480,305	329,005	8,145,845	72.00	3,170,574	2,263,553	2,239,534	1,231,541

### Extension of Co-operative Plan on the C. N. R.

The plan of union-management co-operation as in effect on the Baltimore & Ohio which has been put into operation in several shops of the Canadian National has now been extended to the car and locomotive shops at Fort Rouge and Transcona in the Winnipeg district. The plan is already in operation in the car and locomotive shops at Moncton, N. B., St. Malo, Que., and Leaside, Ont., in the locomotive shop at Stratford, Ont., and the car shop at Stratford, Ont. About one-third of the total of mechanical department employees on the system are employed in shops where the plan is now in effect.

### Averaging 67.8 M.P.H. for 3 Hours, 18 Minutes

The accompanying illustration shows a special train on the Michigan Central on June 7 which made the 224-mile run from Windsor, Ont., to Niagara Falls, Ont., in 198 minutes—an average speed of 67.8 miles per hour. The occasion was a visit to Niagara Falls by delegates to the Brotherhood of Locomotive Firemen and Enginemen's convention at Detroit. Three special trains were run to take all the delegates. The first one made the run from Windsor

York Central, Elkhart, Ind.; first vice-president, C. A. Barnes, Chicago & Western Indiana, Chicago; second vice-president, F. M. A'Hearn, Bessemer & Lake Erie, Greenville, Pa.; third vice-president, C. F. Bauman, Chicago & North Western, Winona, Minn. William Hall, Chicago & North Western, Winona, Minn., is permanent secretary-treasurer. William Mulcahy, Baltimore & Ohio, Garrett, Ind., and B. L. Davies, Baltimore & Ohio, Hammond, Ind., were replaced on the executive committee by J. N. Chapman, Illinois Central, Water Valley, Miss., and H. Keys, Baltimore & Ohio, Baltimore, Md.

### Railway Fire Protection Association

The Railway Fire Protection Association, J. R. Peters (Penn.) president, announces that the next annual meeting will be held at Hotel Morrison, Chicago, on Tuesday, Wednesday and Thursday, October 20, 21, 22.

At the opening session on Tuesday morning besides the president's address and the report of the publicity committee, W. F. Hickey, chairman, there will be an address by Franklin H. Wentworth, secretary of the National Fire Protection Association.

Six committee reports are scheduled to be presented on Tuesday



Photo courtesy B. of L. F. & E. Magazine

Michigan Central Train Which Made 224 Miles in 198 Minutes

in 203 minutes, the second (the one shown here) in 198 minutes and the third in 200 minutes. The locomotives were specially selected for the service by E. R. Webb, master mechanic at St. Thomas, Ont., and were gone over with extreme care in the shops and put in the very best possible condition before the run. They were freshly painted and displayed British and American flags and banners describing the nature of the excursion. Each train was made up of ten steel coaches and a baggage car.

### General Foremen Hold Nineteenth Convention

The nineteenth annual convention of the International Railway General Foremen's Association was held at the Hotel Sherman, Chicago, on September 8 to 11 inclusive. Six topics were discussed, including Automatic Train Control, Supervision of Repairs to Special Locomotive Appliances, Straightline or Spot System of Car Repairs, What Can the General Foreman Contribute to Obtain More Ton Miles per Shop Man Hour, Reclamation of Car and Locomotive Material, and Best Routing System to Increase Shop Output. Some information of special value was developed in regard to the methods of maintaining boosters, feed water heaters and reverse gears, included in the second topic. The third topic contained important sub-divisions on freight car truck repairs and steel car repair facilities. On the third day of the convention the association was addressed by R. V. Wright, managing editor of the *Railway Age*, who made a strong appeal for a higher type of leadership in the railroad mechanical field and pointed out the urgent need of definite plans for building men for the future.

The officers of the association for 1926, most of whom were re-elected, are as follows: President, H. E. Warner, New

afternoon as follows: On statistics, J. H. Yelton, chairman; Fuel Oil, E. L. Tallichet; Fuel Oil on Water, W. F. Steffens; Forms, W. C. Neely; Fire Alarm Signaling, de Witt Rapalje; Storage of Records, A. D. Brooks.

The handbook of the association which has been compiled by a committee during the past year will be presented on Wednesday morning by T. E. Chapman, chairman of the committee. On Wednesday afternoon, Eugene Arms will discuss a proposal to prohibit wood shingle roofs on railroad property where leased; and de Witt Rapalje will present a special report on pyroxylin lacquers.

The Thursday morning session is to be devoted to general discussion.

### Tool Foremen Conclude Meeting

At the closing sessions of the American Railway Tool Foremen's convention, held at the Hotel Sherman, Chicago, September 2 to 5, as reported on page 444 of the *Railway Age* for September 5, "The Tool Foreman's Responsibilities" was discussed by G. T. Martin, assistant to the general superintendent of motive power of the Chicago, Milwaukee & St. Paul, and "Economies Possible by Standardized Small Tools," by E. J. McKernan, general supervisor of tools of the Atchison, Topeka & Santa Fe. E. L. Woodward, western mechanical editor of the *Railway Age*, read a paper entitled "The Importance of the Tool Room to the Railroads," emphasizing some ways in which the toolroom can be operated to help reduce shop and enginehouse costs, and E. A. Hildebrandt, tool foreman of the Big Four at Indianapolis, Ind., presented some pertinent remarks on "Co-operation." The new officers of the association elected for 1926

are as follows: President, E. A. Hildebrandt, tool foreman, Cleveland, Cincinnati, Chicago & St. Louis, Indianapolis, Ind.; first vice-president, O. D. Kinsey, general supervisor of tools, Chicago, Milwaukee & St. Paul, Milwaukee, Wis.; second vice-president, E. L. Graeme, tool foreman, Delaware, Lackawanna & Western, Scranton, Pa.; third vice-president, W. R. McMilligan, tool foreman, Missouri-Kansas-Texas, Parsons, Kans. G. G. Macina, Chicago, Milwaukee & St. Paul, Chicago, was re-elected permanent secretary-treasurer of the association.

The newly-elected executive committee consists of E. C. Heingarten (C. & N. W.), M. J. Harney (N. Y., N. H. & H.), J. T. Sumner (M. C.), L. C. Brown (C. B. & Q.) and W. J. Hynes (M. P.).

### Large Exhibition of Tools at Tool Foremen's Convention

Fifty-six manufacturers of railway tools, machines and other supplies were represented at the convention, the exhibits comparing favorably with those of previous years both in number and interest. At the annual meeting of the Supply Men's Association the following officers were elected for the year 1926: President, H. K. Clark, Norton Company; secretary-treasurer, W. R. Mau, Vanadium Alloys Steel Company. The executive committee consists of C. O. Montague, Clark Equipment Company; C. S. Goddard, Goddard & Goddard Company; Earl Thulin, Duff Manufacturing Company; F. A. Armstrong, Pratt & Whitney Company; E. T. Jackman, Jr., Firth-Sterling Steel Company, and J. J. Dale, Dale Machinery Company.

The following is the list of supply companies, products exhibited and representatives in attendance:

Armstrong Bros. Tool Company, Chicago.—Tool-holders, drop-forged wrenches, lathe dogs, clamps, ratchet drills, pipe stocks and dies and a new pipe wrench. Represented by John Sutton and Steve Garrone.

Arrow Tools, Inc., Chicago.—Flue heading tools, pneumatic chisels, rivet sets and backing-out punches. Represented by N. W. Benedict and Louis Grocsl.

Ashton Valve Company, Boston, Mass.—Deadweight tester, driving wheel quartering gage, wheel press mounting gage, air inspection test gage, gage testing and proving outfit and safety valves and gages. Represented by Charles Gaston.

Athol Machine & Foundry Company, Athol, Mass.—Vises. Represented by H. C. Gielow.

Atkins, E. C., & Co., Indianapolis, Ind.—Silver steel hack saws. Represented by C. E. Drake, H. G. Hoag and L. L. O'Key.

Atlas Steel Corporation, Dunkirk, N. Y.—Railroad tire turning tools, high speed hot rolled tool steel sections, cold drawn tool steel sections and drop forged high speed steel cutter blanks. Represented by Harry Hardwicke, W. G. Zetsche, and Walter Bould.

Besly, Charles H., & Co., Chicago.—Abrasive discs and Besly taps. Represented by R. E. Beimer.

Borden Company, Warren, Ohio.—Pipe cutting and threading tools. Represented by V. M. Gaspar.

Boss Bolt & Nut Works, Chicago.—Rivets, bolts, lock nuts. Represented by J. W. Fogg.

Brown & Sharpe Manufacturing Company, Providence, R. I.—Precision tools and milling cutters. Represented by H. G. Clayton and W. A. Weatherhead.

Brubaker, W. L., & Bros. Company, Millersburg, Pa.—Taps and reamers. Represented by O. R. Kusler.

Buckeye Twist Drill Company, Alliance, Ohio.—Twist drills and reamers. Represented by J. G. Eck and H. E. Eaton.

Chicago Pneumatic Tool Company, New York.—Repairing outfit and bisecting riveting hammer. Represented by E. Hembly.

Clark Equipment Company, Buchanan, Mich.—High speed drills and reamers. Represented by C. O. Montague, C. E. Staninger and H. S. Berry.

Cleveland Pneumatic Tool Company, Cleveland, Ohio.—Pneumatic drills and grinders, riveting and chipping hammers, pressure seated air valves and hose couplings. Represented by B. H. Tripp and C. J. Albert.

Cleveland Steel Tool Company, Cleveland, Ohio.—Punches, dies, rivet sets and chisel blanks. Represented by Harry W. Leighton.

Cleveland Twist Drill Company, Cleveland, Ohio.—Drills and high speed reamers. Represented by W. L. Evans, I. P. Farnum and H. S. White.

Colonial Steel Company, Pittsburgh, Pa.—Fractures of tool steels of various grades. Represented by H. M. Bray, W. W. Shaw and R. I. Beeson.

Crucible Steel Company, Pittsburgh, Pa.—Steels. Represented by F. Baakerfield, K. R. Fletcher, J. H. Jones and A. F. Hines.

Cushman Chuck Company, Hartford, Conn.—Lathe and drill chucks. Represented by A. L. Whittemore and F. Barker, Jr.

Dale Machinery Company, Nashville, Tenn.—Lehmann lathes. Represented by James Dale.

Detroit Twist Drill Company, Detroit, Mich.—Drills. Represented by W. M. Petrie.

Duff Manufacturing Company, Pittsburgh, Pa.—Lifting jacks. Represented by C. N. Thulin and Earl Thulin.

Faessler Manufacturing Company, The J., Moberly, Mo.—Boilermakers' tools, expanders and flue cutters. Represented by G. R. Maupin.

Federal Machinery Sales Company, Chicago.—Screw cutting tools and tapping devices. Represented by Norton A. Booz and Erling H. Lund.

Firth-Sterling Steel Company, McKeesport, Pa.—Raw materials used in the manufacture of tool steel. Represented by C. O. Ericke, C. E. Hughes and Edwin T. Jackman.

Goddard & Goddard Company, Inc., Detroit, Mich.—Milling cutters. Represented by C. H. Wallace and C. S. Goddard.

Independent Pneumatic Tool Company, Chicago.—Pneumatic drills, hammers, rivet busters, electric drills and accessories. Represented by A. Anderson, I. Cruice, W. A. Nugent and H. E. Nelson.

Ingersoll Milling Machine Company, Rockford, Ill.—Heavy duty milling machine cutters. Represented by Amos A. Braid.

Ingersoll-Rand Company, New York.—Pneumatic tools.—Represented by W. A. Johnson, L. W. Schnitzer, T. E. Forbes, W. F. Mitchell and R. W. Jamieson.

Jones & Lamson Machinery Company, Springfield, Vt.—Ground taps, dies and chasers, screw thread comparators, staybolt attachment for turret lathe. Represented by G. F. Bickford and John Price.

Keller, William H., Inc., Grand Haven, Mich.—Pneumatic tools. Represented by J. R. Space, E. J. Biederman and Daniel Woodhead.

Kemp Smith Manufacturing Company, Milwaukee, Wis.—Milling machine attachments. Represented by A. C. Nieman.

King Pneumatic Tool Company, Chicago.—Pneumatic tools. Represented by John M. Butler and J. C. Buckels.

Larco Wrench & Manufacturing Corp., Chicago.—Pipe and monkey wrenches. Represented by Geo. J. Duffy and Winsor R. Chase.

Latrobe Tool Company, Latrobe, Pa.—High speed drills, reamers and special tools. Represented by G. A. Moore and J. A. Dilger.

Lehmann Machine Company, St. Louis, Mo.—Lehmann lathe. Represented by Paul Lehmann and T. J. Bold.

Lovejoy Tool Works, Chicago.—Boiler tube expanders, drill sockets, tap wrenches, staybolt chucks, rivet sets, recutting tools, beading tools, flaring tools and tube cutters. Represented by M. W. Dangel and Tom Brown.

Manning Abrasive Company, Inc., Troy, N. Y.—Emery and abrasive cloth in sheets, discs, endless belts, rolls, and sleeves. Represented by G. R. White, D. A. Campbell and R. F. Wadham.

Manning, Maxwell & Moore, Inc., New York.—Portable air tools, locomotive frame jaw grinder, and arch tube cleaner. Represented by R. S. Dean, E. D. Garfield, L. E. Brayton, H. S. Smith and W. R. Gummere.

Marshall & Huschart Machinery Company, Chicago.—Literature, etc. Represented by H. W. Jones, Geo. C. Edwards and Geo. R. Ray.

McGraw-Hill Company, New York.—American Machinist. Represented by Frank W. Curtis, associate editor.

Minnesota Mining & Manufacturing Company, Chicago.—Cloth and paper abrasives. Represented by A. E. Kimball and M. M. Olsen.

Morse Twist Drill & Machine Company, New Bedford, Mass.—Drills, reamers, cutters, taps and dies.—Represented by J. Gordon Barr, W. F. Evans and Rowland F. Chase.

National Twist Drill & Tool Company, Detroit, Mich.—Drills, reamers, cutters, and end mills. Represented by E. J. Chamberlain, A. R. Miller and F. A. Green.

Norton Company, Worcester, Mass.—Grinding wheels. Represented by H. K. Clark.

Norton, A. O., Inc., Boston, Mass.—35- and 50-ton self-lowering locomotive and car jacks and 25 and 35-ton journal jacks. Represented by R. J. McKay, E. W. Hanagan and C. H. Smith, Jr.

Parker Company, The Chase, Meriden, Conn.—Railway shop vises. Represented by G. A. Allen, Chicago, western representative.

Pratt & Whitney, Hartford, Conn.—4 groove twisted frame reamers, new design inserted blade cutter and Model B toolroom lathe. Represented by W. R. Mullinix, F. Best and F. A. Armstrong.

Railway Mechanical Engineer, New York.—Represented by E. L. Woodward, M. H. Larnard.

Simonds Saw & Steel Company, Fitchburg, Mass.—Inserted tooth cold saws, hack saws and files. Geo. R. Bird.

Starrett, The L. S. Company, Athol, Mass.—Precision tools. Represented by A. W. Smith.

Union Manufacturing Company, New Britain, Conn.—Chucks. Represented by E. I. Stevens.

Union Twist Drill Company, Athol, Mass.—Milling cutters, drills, taps, dies and reamers. Represented by E. H. Anthony, H. H. Knopke, E. H. Colesworthy and J. J. Johnson.

Vanadium Alloys Steel Company, Latrobe, Pa.—Tool steel products. Represented by Wm. R. Mau and Geo. Buettner.

Western Tool & Manufacturing Company, Springfield, Ohio.—Lathe tools, vises and expanding mandrils. Represented by A. L. Whittemore and F. Barker, Jr.

Whitman & Barnes Manufacturing Company, Akron, Ohio.—Twist drills and reamers. Represented by M. J. Klarins, J. N. Kearns and A. N. Nelson.

### Annual Meeting, Telegraph and Telephone Section

The Telephone and Telegraph Section of the American Railway Association, G. D. Hood, chairman, announces its annual meeting, to be held in the Roosevelt Hotel, New Orleans, La., on Tuesday, Wednesday and Thursday, October 27, 28, 29. The committee reports to be presented are scheduled by secretary W. A. Fairbanks as follows:

Committee No. 1—Construction and Maintenance—Outside Plant.

Sub-committee A—Pole lines, wires and cables.

Sub-committee B—Wire crossings.

Sub-committee C—Underground construction.

Sub-committee D—Transpositions.

Sub-committee E—Outside plant maintenance.

Committee No. 2—Construction and Maintenance—Inside Plant.

Sub-committee G—Apparatus, materials and tools.

Sub-committee H—Locations and layouts.

Sub-committee I—Circuits and current supply.

Sub-committee K—Installation and maintenance.

Committee No. 3—Protection Against Electrolysis.

Committee No. 4—Electrical Protection.

Committee No. 5—Communication Development.

Committee No. 6—Message Traffic.

Committee No. 7—Inductive Interference.

Committee No. 11—Communication Transmission.

Committee No. 12—Radio and Wire Carrier Systems.

The following papers will be presented: "Lightning Discharges," by E. E. F. Creighton, General Electric Company; "Field Problems in Inductive Co-ordination," by J. W. Milnor, Western Union Telegraph Company; "Wire Telephone Communication in Theory and Practice," by Wm. H. Capen, International Western Electric Company.

Officers are to be elected at this meeting.

## Traffic News

Tourist traffic to California from May 15 to July 31 was 48 per cent heavier than that of the same period last year, according to an estimate by the passenger department of the Atchison, Topeka & Santa Fe.

The Missouri Pacific has inaugurated a new fast freight service between Dupo, Ill., and Memphis, Tenn. The schedule is 23½ hours. A train operating between Paragould, Ark., and Wynne, and one between Wynne and Memphis, Tenn., have been discontinued. The new train leaves Dupo, Ill., at 3 p. m. and makes stops at Gale, Ill., Paragould, Ark., and Wynne.

### Further Reduction in Freight Claims

Claims resulting from loss or damage to freight shipments while in transit on the railroads of the United States were less, compared with the volume of freight handled, during the first six months this year than in any corresponding period on record, according to reports filed by the carriers with the Freight Claim Division of the American Railway Association. Loss and damage claims paid during the first six months in 1925 totaled \$20,380,879, although the number of cars loaded with revenue freight during that period was the greatest ever handled by the carriers during any corresponding period on record. This was a reduction of 23.3 per cent as compared with the first six months in 1924 and a decrease of 12.3 per cent as compared with the same period in 1923. It, also, was a decrease of 25.6 per cent as compared with the first half of 1922 and of 63.4 per cent as compared with 1921.

There has been a continuous reduction since 1920 in loss and damage to freight and property for the country as a whole. This has been brought about, not only by active co-operation between the railroads themselves, but also by the shippers and receivers of freight. There has been better packing on the part of shippers and more care has been used in handling freight on the part of the railroads.

### Westward Canadian Grain Rates

#### Reduced to Eastward Level

Under an order issued on September 2 by the Dominion Railway Board at Ottawa the Canadian Pacific and the Canadian National Railways are instructed to file tariffs, effective not later than September 15, reducing rates on grain and flour to Pacific ports, for export, to the same rates, proportioned to distance, as grain and flour would carry if moving eastward for export. This practically places westbound grain and flour for export from Vancouver on the Crow's Nest Pass Agreement basis.

The effect of this ruling will have the effect of reducing the charges on a bushel of wheat between Calgary and Vancouver by nearly 25 per cent. The rate from Calgary to the Coast will be 10.8 cents per bushel, as compared with the present scale of 13.5 cents. The rate from Calgary to Fort William is 15.6 cents. G. G. McGeer, a Vancouver lawyer, who has been fighting on behalf of the government of British Columbia for this rate reduction, says that westward grain shipments this year would amount to 150,000,000 bushels, and Vancouver would handle the whole of Alberta's wheat crop and about half of Saskatchewan's.

The case was heard by Chief Commissioner H. A. McKeown and Commissioner Frank Oliver.

"If this application had to do with commodities other than grain and flour, it would not seem to me necessary to dispose of it prior to a report involving whatever changes are generally necessary, but the grain business of Canada is of sufficient importance to call for special legislation, concerning the rates charged for transportation of grain and flour," states the Chief Commissioner in his judgment. "Irrespective, almost, of the cost of transportation, it is decreed that this national asset must find its way to market, as far as railway carriage is concerned, at a rate substantially lower than other commodities bear. I do not think it can be contended that such action is founded on a desire or intention to aggrandize one part of the country at the expense of another, but rather for the reason that the enormous

national value of the grain production of Canada justifies such procedure."

Simultaneously, with the issuance of the order was issued a copy of a resolution proposed by Assistant Chief Commissioner S. J. McLean, and assented to by Commissioners Boyce and Lawrence, declaring that the matter of export grain rates via Pacific ports and other matters must of necessity be dealt with as part of the general rate investigation, and under the judgment to be rendered in connection with that investigation.

Then on Friday of last week dissenting judgments were delivered by Commissioners Boyce and Lawrence.

In the concluding part of his dissent in this matter, Commissioner Boyce states: "The order, improperly issued, should be forthwith rescinded, and all matters involved in the complaint should be reserved for the consideration of the board in the same manner, and subject to the same principles and procedure as those complaints from any other province, or locality in Canada, in the general investigation of the whole rate structure under the terms of the order-in-council, P. C. 886, and the notice thereunder, issued to the public, dated July 9th last, and such matters involved in this complaint should not be separated from such general investigation for special and preferential treatment which would only result in the board's functions in dealing with the whole structure being crippled and embarrassed."

Commissioner Lawrence makes the following declaration in the course of his dissent:

"I, therefore, in the interests of the public generally, and also with the object of keeping inviolate the principles laid down in former actions, i. e., serving the whole of the Dominion of Canada with equal fairness, dissent from the judgment of the chief commissioner, a copy of which I had not seen until after it had been given to the public and telegraphed to applicants, and I was thereby denied the usual privilege of pronouncing upon the same, which, I think, should have been done, particularly after the matter had been discussed by the whole board.

"I think that, in the public interest, an order should issue countermanding Order No. 36769, dated September 2nd, 1925."

### Daylight Saving in Court

People who do not like the custom of keeping their clocks an hour fast in summer, are still active in their opposition to daylight saving schemes, and in Massachusetts a number of farmers and others have entered a suit in equity in the United States District Court at Boston against the commissioner of education, the state treasurer and other officers who have a hand in the administration of the law in that state. Among the plaintiffs are the Massachusetts State Grange, inhabitants of the town of Hadley, the Brotherhood of Locomotive Engineers, the Brotherhood of Locomotive Firemen and Enginemen, Charles F. Clark of Sunderland, tobacco grower; Mrs. Frances C. Snow of Williamsburg, a mother of school children; and Charles W. Mann of Methuen, an orchardist.

The petition presented to the court fills 50 pages, and it is claimed that 50,000 farmers are back of it. The petitioners declare that millions of dollars in profits are lost to them annually, that lives are endangered on railroads and that the law is unconstitutional. The farmers and the mothers present the well-known arguments and the enginemen and firemen complain because their family life is lived under one time and their working hours under another. The town of Hadley, by refusing to change its clocks, forfeits \$3,500 a year which would be allotted to the town as state aid for the support of schools.

### C. N. R. Offers to Sell Portland Facilities

At a conference in Portland, Me., S. J. Hungerford, vice-president of the Canadian National, informed the chairman of the directors of the Port of Portland that his company was ready to sell to the State of Maine the Grand Trunk docks and grain elevators in that city. There has been considerable criticism of the C. N. R.'s maintenance of these facilities on the part of the people in the Maritime Provinces who are bitterly opposed to the continuance of Canadian National's routing of business via Portland, on the ground that it robs Halifax and St. John of what they deem their own business. The Grand Trunk terminal property at Portland includes, in addition to trackage, seven wharves, two grain elevators with combined capacity of 2,500,000 bushels, office buildings and sheds.

The value of the property exceeds \$3,000,000.

## Equipment and Supplies

### Locomotives

THE LOUISVILLE & NASHVILLE is inquiring for 10 Mountain type locomotives and 20 Mikado type locomotives.

THE SOROCABANA RAILWAY (Brazil) has ordered 11 Pacific type locomotives from the Baldwin Locomotive Works.

### Freight Cars

THE BALTIMORE & OHIO is inquiring for 1,000 hopper car bodies.

THE ILLINOIS CENTRAL is inquiring for 200 flat cars and 150 stock cars.

THE ARGENTINE STATE RAILWAYS are inquiring, through the car builders for 20 tank cars of 8,000 gal. capacity.

THE LOUISVILLE & NASHVILLE is inquiring for 500 box cars, 500 gondola cars and 250 flat cars, all of 50 tons capacity.

THE GREAT NORTHERN has placed an order with the Bethlehem Steel Company for 500, 50-ton general service cars.

THE BUFFALO, ROCHESTER & PITTSBURGH contemplates having repairs made to from 300 to 500 box cars of 40 tons capacity.

THE CAMBRIA & INDIANA will have repairs made to 200 hopper cars at the shops of the Cambria plant of the Bethlehem Steel Company.

THE ISCO CHEMICAL COMPANY, Niagara Falls, N. Y., has ordered one 8,000-gal. single-compartment tank car from the Standard Tank Car Company.

THE GEORGIA, FLORIDA & ALABAMA ordered from 275 to 285 single sheathed box cars of 40 tons capacity from the General American Car Company.

THE GLEN NINA TANK LINE, Buffalo, N. Y., has ordered one triple-compartment 6,000-gal. 40-ton truck tank car from the Standard Tank Car Company.

THE GEORGIA PINE TURPENTINE COMPANY, New York, has ordered from the General American Tank Car Corporation one tank car of 8,000 gal. capacity.

THE RAILWAYS IN THE PROVINCE OF BUENOS AIRES, Argentine, are inquiring through the car builders for 50 gondola cars, 50 flat cars, 100 stock cars and 200 box cars, all of 30 tons capacity.

E. I. DU PONT DE NEMOURS & COMPANY has ordered from the General American Tank Car Corporation 22 class V tank cars of 50,000 lb. capacity for the transportation of anhydrous ammonia. Inquiry for this equipment was reported in the *Railway Age* of August 22.

### Passenger Cars

THE LOUISVILLE & NASHVILLE is inquiring for 38 miscellaneous passenger cars and 2 steel dining car shells.

THE GEORGIA, FLORIDA & ALABAMA is inquiring for 2 coaches, 2 baggage cars and 2 combination passenger and mail cars.

THE KEY SYSTEM TRANSIT COMPANY, Oakland, Cal., is inquiring for 40 passenger cars of the one-man and two-man, multiple-unit control types.

THE DELAWARE & NORTHERN has ordered one combination passenger, baggage and mail, gasoline rail motor car from the J. G. Brill Company.

THE CHICAGO, SOUTH SHORE & SOUTH BEND is inquiring for 10 combination smoking, passenger and baggage cars and 15 combination smoking and passenger cars.

### Iron and Steel

THE MICHIGAN CENTRAL is inquiring for 670 tons of structural steel.

THE CHICAGO, BURLINGTON & QUINCY is inquiring for 800 tons of structural steel for an office building and postoffice substation at Omaha, Neb.

THE CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS is inquiring for prices on steel work for a subway at Dennison avenue, Columbus, Ohio, three I-beam spans for installation at DeGraff, Ohio, and two I-beam spans for the Cincinnati Northern.

THE GREAT NORTHERN is asking for bids on bridge steel as follows: For 1,050 tons 98-ft. through plate girder spans; 65 tons standard 7-ft. deep through plate girder spans; 187 tons standard 7-ft. deep deck plate girder spans; 360 tons standard 5½-ft. deep deck plate girder spans; 360 tons 32-ft. girder beam spans; 35 tons 32-ft. girder beam spans; 48 tons 20-ft. I-beam spans; 260 tons 120-ft. through truss spans and 205 tons special truss and viaduct reinforcement.

### Machinery and Tools

THE WABASH has ordered one 48-in. car wheel borer from the Niles-Bement-Pond Company.

THE NEW YORK CENTRAL has ordered a 6-ft. radial drill from the Niles-Bement-Pond Company.

THE CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS has ordered one car wheel borer from the Niles-Bement-Pond Company.

THE ILLINOIS CENTRAL has ordered one 200-ton locomotive hoist for use at Markham yard, Chicago, from the Whiting Corporation.

THE ATCHISON, TOPEKA & SANTA FE has ordered 2 combination journal turning and axle lathes, from the Niles-Bement-Pond Company.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered one 50-ton electric drop table for use at Dalhart, Tex., from the Whiting Corporation.

### Track Specialties

THE CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS is inquiring for 6,000 90-lb. angle bars for the Peoria & Eastern.

### August Locomotive Shipments

Shipments of locomotives in August with comparisons, as compiled by the Department of Commerce from reports of individual manufacturing establishments, follow:

Year and month	Shipments			Unfilled orders end of month		
	Total	Domestic	Foreign	Total	Domestic	Foreign
1923						
January .....	229	217	12	1,788	1,699	89
February .....	207	196	11	2,220	2,141	79
March .....	282	269	13	2,316	2,214	102
April .....	217	201	16	2,204	2,111	93
May .....	238	228	10	2,150	2,045	105
June .....	232	221	11	1,958	1,854	104
July .....	239	211	28	1,738	1,652	86
August .....	272	259	13	1,497	1,406	91
Total 8 months...	1,916	1,802	114	....	....	....
1924						
January .....	151	147	4	376	344	32
February .....	99	92	7	499	466	33
March .....	132	128	4	534	494	40
April .....	73	63	10	640	586	54
May .....	111	93	18	643	589	54
June .....	145	134	11	531	462	69
July .....	140	130	10	483	416	67
August .....	139	121	18	361	306	55
Total 8 months...	990	908	82	....	....	....
1925						
January .....	90	45	45	407	351	56
February .....	85	73	12	397	343	54
March .....	109	93	16	447	351	96
April .....	92	82	10	477	362	115
May .....	96	68	28	467	353	114
June .....	110	61	49	397	300	97
July .....	66	58	8	378	283	95
August .....	104	91	13	309	225	84
Total 8 months...	752	571	181	....	....	....

## Supply Trade News

The Portland Cement Association, Chicago, will build a five-story administration building and testing laboratory at Dearborn street and Grand avenue, in that city.

Earle Pearson, educational director of the Associated Advertising Clubs of the World, has been appointed general manager, to succeed Carl Hunt, who has resigned, effective September 15, to become executive vice-president of the Chamber of Commerce at Orlando, Fla.

The American Car & Foundry Company has secured control of the Hall-Scott Motor Car Company, of Oakland, Cal. This company manufactures motors for service in motor buses, trucks, self-propelled rail cars and also for marine service. It has for a number of years supplied the power plant for the Fageol buses.

Victor W. Ellet has been appointed sales manager of the Hunt-Spiller Manufacturing Corporation, with headquarters at Boston, Mass., in succession to John G. Platt, whose jurisdiction as vice-president



Victor W. Ellet

has been extended to cover operation as well as sales. Mr. Ellet was born in Burlington, Iowa. He served his time as machinist with the Atchison, Topeka & Santa Fe, afterwards working in the shops of that road, the St. Louis, Iron Mountain & Southern, the Ft. Worth & Denver City, and the Choctaw, Oklahoma & Gulf. He also served as a tool maker for the United States Government at the Rock Island Arsenal. In 1905 he entered the service of the Missouri Pacific at Hoisington, Kan., as foreman, serving afterwards on the Rock Island in charge of the mechanical department at Fairbury, Neb., Rock Island and Chicago. In 1911 he entered the employ of the Hunt-Spiller Manufacturing Corporation as traveling representative, in which capacity he was serving at the time of his present appointment.

The Hulson Grate Company, Inc., Keokuk, Iowa, which bought the Pechstein Iron Works, in Keokuk, last April, has recently placed the plant in operation. The machine and boiler shops have been discontinued and the foundry has been re-equipped and modern machinery installed for the manufacture of Hulson grates.

E. J. Bartlett, general manager of the Baker R & L Company, Cleveland, Ohio, has been elected president, to succeed F. W. Treadway, who has been made chairman of the board of directors. In the *Railway Age* of September 5, it was incorrectly stated that Mr. Bartlett succeeded E. J. Stahl as president and that Mr. Stahl became chairman of the board. E. J. Stahl at the present time is vice-president of the company.

The C. H. Hollup Corporation, formerly the International Welding Engineering Corporation, Chicago, manufacturer of welding wire and supplies, have purchased 15,000 sq. ft. of land on South Turner avenue and West 48th Place, upon which it will construct a factory building. The building will have approximately 12,000 sq. ft. of floor space and will be of brick and mill construction with faced brick, terra cotta trimmed on the north and east ends.

The Dearborn Chemical Company contemplates the construction of a warehouse in Los Angeles, Cal., while the plant under construction in Chicago will be ready for occupancy on October 17. This company has appointed V. Cattoretti & Co., La Paz, Bolivia, its agent for oils and greases in Bolivia. It has also appointed Graham, Rowe & Co., Lima, Peru, its agent for oils and greases. This company has been agent for the Dearborn Chemical Company for its water treatment service and chemicals.

### Union Switch & Signal

#### Company Absorbs Hall Company

The Union Switch & Signal Company, Swissvale, Pa., announces that it has acquired the assets of the Hall Switch & Signal Company, Garwood, N. J. The manufacture of the apparatus heretofore furnished by the Hall Company will be continued by the Union. The Hall Company organization will be continued, for the present, without change.

### Obituary

G. P. Donelson, formerly president of the Continental Bolt & Iron Works, Chicago, died in California on September 3.

Stephen F. Sullivan, vice-president of the Ewald Iron Company, with headquarters in Chicago, died in Benton Harbor, Mich., on September 6, after a short illness of heart trouble.

B. M. W. Hanson of the Hanson-Whitney Manufacturing Company, Hartford, Conn., died at his home in Hartford on September 6. Mr. Hanson formerly was with the Pratt & Whitney Company for about twenty years, part of this time serving as works manager at Hartford.

John J. Hannahan, assistant to the president of the Locomotive Stoker Company, Pittsburgh, Pa., died at his home in Merriam Park, Minn., on September 4, after a brief illness. Mr. Hannahan had been an employee of the Locomotive Stoker Company since its inception, having entered its service in 1912 and of late years he held the position of assistant to the president. He was well known to railroad men throughout the country through his connection for 25 years with the Brotherhood of Locomotive Firemen and Enginemen. Mr. Hannahan was past grand master of this organization at the time of his death.



John J. Hannahan

John H. Ohlsson, assistant general manager of sales of the J. G. Brill Company, died suddenly on September 3, at his home in Philadelphia, Pa. Mr. Ohlsson was born in Brooklyn, N. Y., on October 4, 1880. He attended the public schools of Philadelphia until 1894 when he started with the Brill Company as an office boy. He rose steadily in the organization until he was appointed to the executive position which he held at the time of his death. From 1907 to 1912 he was secretary to the vice-president and general manager and then to 1919 acting assistant to the general manager of sales. In 1919 he was appointed assistant general manager of sales.

### Trade Publications

"THE IDEAL RETAINING WALL."—In a bulletin of four pages the Federal Cement Tile Company presents a series of illustrations which explain the basic plan and the use of Federal concrete cribbing, a type of precast retaining wall construction recently placed on the market. Illustrations show the manner of assembling the wall, its appearance after completion, etc.

## Railway Construction

**BOSTON & ALBANY.**—A contract has been awarded to the New England Construction Company, Springfield, Mass., for lining and extensions to a culvert over the Westfield river at Washington, Mass.

**CANADIAN NATIONAL.**—A contract has been awarded to S. S. Magoffin & Company, Edmonton, Alta., for filling in the trestle bridge at Lynn creek, British Columbia. The fill will require approximately 1,000,000 cu. yd. of earth. The cost is estimated at approximately \$300,000. The contracts have been awarded to the Tomlinson Construction Company, Winnipeg, Man., and to the J. G. McArthur Company, Winnipeg, for the construction of 12 miles and 7 miles respectively of branch lines from Beconia, Man., to Pine Falls. The total cost of construction will be approximately \$475,000.

**CHICAGO, BURLINGTON & QUINCY.**—Plans are being prepared for the construction of a railway mail building at Omaha, Neb., and a call for bids will be sent out the latter part of September. The construction of a retaining wall will be part of this project.

**CHICAGO, NORTH SHORE & MILWAUKEE (ELECTRIC).**—The construction of a passenger station at Racine, Wis., is contemplated.

**CHICAGO, ROCK ISLAND & PACIFIC.**—The construction of a freight warehouse at Dallas, Tex., to be used jointly with the St. Louis Southwestern and the Fort Worth & Denver City is contemplated.

**CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA.**—A contract is reported to have been awarded to the Ernest M. Ganley Company, for the construction of a roundhouse and machine shop at Spooner, Wis., to cost approximately \$50,000.

**CITY OF PHILADELPHIA.**—The department of wharves, docks and ferries will receive bids until noon, September 14, for the construction of a car storage yard appurtenant to Piers 82 and 84, South Delaware river, as noted in the *Railway Age* of August 29.

**DENVER & RIO GRANDE WESTERN.**—The portion of the line between Woodside, Utah, and Price, a distance of 18 miles, which was severely damaged by a recent flood, will be relocated to put it on a higher level. Plans for the work are now being prepared.

**FLORIDA EAST COAST.**—A contract for engineering work in connection with the construction of the Miller shops, north of St. Augustine, Fla., has been awarded to Battey & Kipp, Inc., Chicago. A contract has been awarded to the Foundation Company, New York, for the construction of the shop buildings. The authorization of this work was reported in the *Railway Age* of April 11.

**MOBILE & OHIO.**—Bids will be received until September 14 for the construction of a one-story brick and stucco passenger station, 26 ft. by 85 ft., at A. and M. College, Miss. The station will have a composition shingle roof and concrete flooring.

**PENNSYLVANIA.**—A contract has been awarded to the Fowler Electric Supply Company, Toledo, Ohio, for supplying power machinery for a lift bridge over the Delaware & Chesapeake canal at Canal, Del.

**UNION PACIFIC.**—A 2½ mile extension into the Wellington, Colo., oil fields will be constructed at once.

**VIRGINIAN.**—Contracts have been awarded to the Thomas Company, Inc., Huntington, W. Va., for replacing timber trestles with permanent structures at three points and for building the sub-structure for a highway under pass at Kegley, W. Va.; total cost, approximately, \$30,000.

**WESTERN MARYLAND.**—This company has awarded a contract to Andrew Miller, Baltimore, Md., for the construction of a trestle for an apron track alongside its merchandise pier at Port Covington, Baltimore, Md.; approximate cost, \$30,000.

## Railway Financial News

**ATCHISON, TOPEKA & SANTA FE.—Tentative Valuation.**—The Interstate Commerce Commission has served a tentative valuation report as of June 30, 1916, in which the final value for rate-making purposes of the common-carrier property owned and used is placed at \$387,735,000, that of the property owned at \$391,162,318 and that of the property used at \$476,120,978. The latter figure includes \$88,038,078 for leased lines, including the California, Arizona & Santa Fe; Dodge City & Cimarron Valley; Garden City; Gulf & Northern; Laton & Western; Minkler Southern; Oklahoma Central; Oil Fields & Santa Fe; Rocky Mountain & Santa Fe; Verde Valley, and Western Arizona. The outstanding capitalization as of valuation date was \$634,924,553 and the investment in road and equipment, including land, is stated in its books as \$534,221,828, which the report readjusts to \$500,268,145, of which \$438,532,854, less an undetermined portion thereof assignable to offsetting items included in amounts recorded at \$58,856,611.52 the report says, represents considerations other than money, the cash value of which at the time of the transaction the commission is not able to report. The investment of the Santa Fe in improvements on leased property is stated in its books as \$2,090,364. The cost of reproduction new is reported as \$390,148,829 for the property owned and \$482,760,253 for that used. The cost of reproduction less depreciation is reported as \$312,688,365 for the property owned and \$389,598,374 for that used. A total of 153,993 acres of land owned is given a present value of \$46,909,939 and 182,118 acres of land used a present value of \$51,807,320. The company also owned 9,655 acres of non-carrier land, given a present value of \$9,975,515. The investments of the Santa Fe in other companies on date of valuation are stated in its records at a total par value of \$281,514,456 and a book value of \$168,633,104, and its cash on hand and materials and supplies amounted to \$55,529,535, of which only \$12,235,000 is included by the commission in the final value.

**CHICAGO & NORTH WESTERN.—Asks Authority for Further Control of Omaha.**—This company has applied to the Interstate Commerce Commission for authority to acquire further control of the Chicago, St. Paul, Minneapolis & Omaha by acquiring additional stock not now owned by issuing its own common stock in exchange therefor. This, the application says, "will enable applicant to readily bring the two properties together by purchase, merger, lease or consolidation or other lawful method," by reason of which numerous and extensive economies will be effected in overhead expenses and in operation, resulting in improved service, increased efficiency and greater facility in financing. Since 1882 the North Western has owned approximately 52 per cent of the stock of the Omaha, which has 1,750 miles of main track. It is proposed to acquire the additional stock by exchanging 5 shares of North Western common for 7 shares of Omaha common or three shares of North Western common for 2 shares of Omaha preferred. Outside of that held by the North Western the Omaha has outstanding \$5,879,300 of preferred stock and \$9,016,700 of common stock. The North Western also asked authority to issue the necessary amount of its own common stock for the exchange. The North Western's offer to the Omaha stockholders was announced last January.

**DELAWARE & HUDSON.—Stockholders Approve B. R. & P. Lease.**—Stockholders, at a special meeting on August 8, approved the recommendations of the board of managers to lease the Buffalo, Rochester & Pittsburgh for 999 years. The lease provides for payments by the Delaware & Hudson sufficient to pay 6 per cent annual dividends on the \$6,000,000 outstanding preferred and \$10,500,000 outstanding common stock, payment of all fixed charges and maturing debts. Of the outstanding Delaware & Hudson shares, 77.4 per cent were voted in approval. The Buffalo, Rochester & Pittsburgh stockholders will meet on September 15 to consider the proposition.

**DENVER & RIO GRANDE WESTERN.—Abandonment.**—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Capers, Colo., to Graneros, 2.74 miles.

**FLORIDA EAST COAST.—Equipment Trust Certificates.**—This company has applied to the Interstate Commerce Commission for authority for an issue of \$700,000 of 4½ per cent equipment trust certificates.

**ILLINOIS CENTRAL.—Texas & Pacific Opposes Acquisition of A. & V. and V. S. & P.**—This company has filed a brief with the Interstate Commerce Commission opposing the application of the Illinois Central and Yazoo & Mississippi Valley for authority for the latter to acquire control by lease of the Alabama & Vicksburg and the Vicksburg, Shreveport & Pacific.

**LOUISVILLE, HENDERSON & ST. LOUIS.—Initial Common Dividend.**—This company has declared an initial dividend of 2 per cent on common, also semi-annual dividend of 2½ per cent on preferred, both payable September 15 to stock of record September 1. The road is controlled by the Louisville & Nashville which owns about 84 per cent of the capital stock.

**NEW YORK, CHICAGO & ST. LOUIS.—Unification Hearing Resumed.**—The hearing before Director Mahaffie of the Bureau of Finance of the Interstate Commerce Commission on the unification application was resumed at Washington on September 8. The next two days were consumed in further detailed cross-examination of Henry C. Royal, of the accounting firm of Ernst & Ernst, regarding a number of statistical exhibits he had presented at the previous hearing, by Thomas B. Gay, representing the protesting stockholders of the Chesapeake & Ohio.

**NORFOLK & WESTERN.—Virginia Commission Allowed to Intervene in Proposed Lease of Virginian.**—The Interstate Commerce Commission has allowed the State Corporation Commission of Virginia to intervene in the proceedings on the application of this company for authority to acquire control of the Virginian by lease.

**ST. LOUIS-SAN FRANCISCO.—Purchase of Short Lines Ratified.**—The stockholders of the St. Louis-San Francisco, at a meeting on September 4, ratified the action of the directors in purchasing the Muscle Shoals, Birmingham & Pensacola, and the Jonesboro, Lake City & Eastern, and the merger with the Frisco of the Springfield Connecting Railway, the Fayetteville & Little Rock, the Little Rock & Texas, and the Pittsburgh & Columbus, the stock of all of which has been held by the Frisco for some time.

**TEXAS & PACIFIC.—Equipment Trust.**—The Interstate Commerce Commission has approved an issue of \$2,475,000 equipment trust certificates, Series H H, which have been sold to Kuhn, Loeb & Co., at 96.89 and interest. The equipment includes 25 locomotives and 750 freight cars of a total approximate cost of \$3,310,250.

**VIRGINIAN.—Bonds.**—This company has applied to the Interstate Commerce Commission for authority to nominally issue \$3,896,000 of first mortgage 5 per cent 50-year bonds and to sell \$7,500,000 of such bonds to Lee, Higginson & Co., and the National City Company at 95.5.

### Dividends Declared

Lehigh Valley.—Common, 87½c, quarterly; preferred, \$1.25, quarterly, both payable October 1 to holders of record September 12.

Louisville, Henderson & St. Louis.—Common, 2 per cent; preferred, 2½ per cent; both payable September 15 to holders of record September 1.

Pere Marquette.—Common, 1 per cent, quarterly, payable October 1 to holders of record September 15. Prior preferred, 1¼ per cent, quarterly; preferred, 1¼ per cent, quarterly; both payable November 2 to holders of record October 15.

Pittsburgh, Fort Wayne & Chicago.—Common, 1¼ per cent, quarterly, payable October 1 to holders of record September 10. Preferred, 1¼ per cent, quarterly, payable October 6 to holders of record September 10.

St. Joseph, South Bend & Southern.—Common, 1 per cent; preferred, 2¼ per cent, both payable September 15 to holders of record September 11.

St. Louis, Rocky Mountain & Pacific.—Preferred, 1¼ per cent, quarterly, payable September 30 to holders of record September 15.

St. Louis-San Francisco.—Common, 1¼ per cent, quarterly, payable October 1 to holders of record September 15.

### Trend of Railway Stock and Bond Prices

	Sept. 8	Last Week	Last Year
Average price of 20 representative railway stocks .....	86.73	85.38	70.08
Average price of 20 representative railway bonds .....	91.18	90.81	88.05

## Railway Officers

### Financial, Legal and Accounting

**Francis J. Fell, Jr.**, assistant comptroller of the Pennsylvania, has been promoted to deputy comptroller.

**T. B. Barry** has been appointed acting freight claim agent of the Western Pacific, with headquarters at San Francisco, Cal., succeeding **W. F. Whiteman**, who has been granted leave of absence.

### Operating

**O. E. West** has been appointed assistant chief of yard and terminal operations of the Baltimore & Ohio, with headquarters at Baltimore, Md., a newly created position.

**C. H. Shircliffe**, superintendent of dining and parlor cars of the Chicago & North Western, with headquarters at Chicago, has been appointed also superintendent of dining cars of the Chicago, St. Paul, Minneapolis & Omaha, succeeding **O. W. Williams**.

**M. E. Pangle**, who has been promoted to assistant general superintendent of the Western lines of the Chicago & North Western, with headquarters at Norfolk, Neb., was born on



M. E. Pangle

March 9, 1876, at Geneva, Neb., and entered railway service in August, 1896, as a freight brakeman on the Chicago & North Western. He was promoted to freight conductor in 1899 and continued in train service until 1906, when he was promoted to trainmaster of the Black Hills division. Mr. Pangle was transferred to the Eastern division in 1908, where he remained until 1919, when he was promoted to superintendent of the Black Hills division. A year later he was transferred to the Eastern division, and he was

promoted to assistant to the assistant general manager at Chicago in 1922. In March, 1925, Mr. Pangle was promoted to assistant to the vice-president in charge of personnel, in which position he remained until his recent promotion to assistant general superintendent.

**J. L. George** has been appointed assistant superintendent of telegraph of the Norfolk & Western, with headquarters at Roanoke, Va. In the *Railway Age* of September 5, it was incorrectly reported that Mr. George had been appointed superintendent of telegraph of the Norfolk & Western.

**E. F. Gorman** has been appointed superintendent of the Detroit Terminals of the Grand Trunk Western, with headquarters at Detroit, Mich., succeeding **F. L. Sample**, who has been appointed assistant superintendent of the Detroit Terminals. Mr. Sample succeeds **F. B. Lyman**, who has been assigned to other duties.

**J. D. Walker**, superintendent of transportation of the Colorado & Southern, with headquarters at Denver, Colo., has been promoted to superintendent of the Southern division, with headquarters at Trinidad, Colo., succeeding **J. H. Abrams**, who died on August 31. **B. H. Hoover**, chief clerk to the vice-president and general manager, has been promoted to

superintendent of transportation, with headquarters at Denver, in place of Mr. Walker.

**R. P. Jourdan** and **J. B. Fry** have been appointed assistant trainmasters of the Florida division of the Seaboard Air Line, with headquarters at Tampa, Fla. **J. A. Smith** has been appointed terminal trainmaster, in charge of the Tampa Terminal, succeeding Mr. Jourdan. **R. M. Benton** has been appointed passenger trainmaster of the Florida division, with headquarters at West Palm Beach, Fla. **O. D. Blackwell** has been appointed assistant trainmaster of the North Carolina division, with headquarters at Hamlet, N. C., succeeding Mr. Benton.

### Traffic

**R. E. Smith** has been appointed assistant to the freight traffic manager of the Northern Pacific, with headquarters at St. Paul, Minn., a newly created position.

**J. J. O'Connor**, assistant to the general agent of the Northern Pacific, with headquarters at St. Paul, Minn., has been promoted to general agent, freight department, with the same headquarters.

**R. E. Deremiah** has been appointed general agent, passenger department, of the Chicago, Indianapolis & Louisville, with headquarters at French Lick Springs, Ind., succeeding **F. R. Harrison**.

**Captain C. A. DeSaussure** has been appointed general agent, passenger traffic department, of the Southern, with headquarters at Memphis, Tenn. Captain DeSaussure will report to the passenger traffic manager and will perform such duties as are assigned to him.

**F. E. Webster**, assistant general freight agent of the Chicago & Eastern Illinois, with headquarters at Chicago, has been promoted to a new position of general freight agent, with the same headquarters. **G. H. Kummer**, assistant general freight agent in charge of coal traffic, has been promoted to the newly created position of general coal agent, with headquarters at Chicago.

**J. E. Whittemore**, traffic agent of the Chicago & Eastern Illinois, with headquarters at Detroit, Mich., has been promoted to general agent, with headquarters in Grand Rapids, Mich. **J. G. Meehan**, traffic agent, freight department, with headquarters at St. Louis, Mo., has been promoted to general agent, with headquarters at Kansas City, Mo. **C. W. Thacker** has been appointed general agent, with headquarters at Louisville, Ky. All of these are newly established general agencies.

**H. N. Clarke** has been appointed general southwestern agent of the Kansas City, Mexico & Orient, with headquarters at Ft. Worth, Tex., succeeding **C. R. Taylor**, who has resigned. **A. R. Mitchell** has been appointed general agent at Wichita Falls, Tex., in charge of a newly established agency. **E. B. Wright** has been appointed general agent at El Paso, Tex., succeeding **E. L. House**, who has resigned. **H. P. Rich**, traveling freight agent, with headquarters at Dallas, Tex., has been promoted to general agent, with the same headquarters, in charge of another newly established agency.

**R. N. Golden**, who has been promoted to general freight agent of the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn., was born in June, 1878, at Diamond Lake, Ill., and entered railway service in 1896 in the traffic department of the Chicago & North Western. He subsequently served in various capacities in the traffic department until 1914, when he was appointed general agent of the Minneapolis & St. Louis at Cincinnati, Ohio. During federal control Mr. Golden was in the service of the United States Railroad Administration at Washington, D. C. He subsequently returned to the Minneapolis & St. Louis as assistant general freight agent, in which position he remained until his recent promotion to general freight agent.

**B. F. Moffatt**, who has been promoted to assistant freight traffic manager of the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn., was born on March 28, 1873, at Iola, Kan., and entered railway service in 1893 as a clerk

in the local freight office of the Iowa Central, now a part of the Minneapolis & St. Louis. After being transferred to the accounting department, he was promoted to station agent and later to traveling freight agent. In 1909, when the Iowa Central was consolidated with the Minneapolis & St. Louis, Mr. Moffatt was appointed commercial agent of the latter road. He was later promoted to assistant general freight agent, with headquarters at Minneapolis, and held that position until March, 1920, when he was promoted to general freight agent, with the same headquarters. He continued in that capacity until his recent promotion to assistant freight traffic manager.

### Mechanical

**P. C. Morales** has been appointed superintendent of machinery and motive power of the National Railways of Mexico, succeeding **S. A. Alzati**, resigned.

**E. J. Cole**, superintendent of shops of the Union Pacific at Cheyenne, Wyo., has been transferred to Omaha, Neb., succeeding **J. W. Highleyman**, acting superintendent of shops, who has resumed his duties as assistant superintendent of motive power and machinery.

**B. Koontz** has been appointed supervisor of passenger locomotive operations on the Virginia and North Carolina divisions of the Seaboard Air Line, with headquarters at Raleigh, N. C. **W. C. Rogers** has been appointed supervisor of passenger locomotive operations on the South Carolina division, with headquarters at Savannah, Ga.

### Engineering, Maintenance of Way and Signaling

**Garrett Davis**, division engineer of the Cedar Rapids-Minnesota division of the Chicago, Rock Island & Pacific, with headquarters at Cedar Rapids, Ia., retired on September 1 after 48 years of service.

### Obituary

**G. E. Chamberlain**, assistant tax commissioner of the Southern Pacific, Texas lines, died at San Antonio, Tex., on August 19.

**Col. J. R. Buchanan**, formerly general passenger agent of the Fremont, Elkhorn & Missouri Valley, now a part of the Chicago & North Western, died at his home in Waukesha, Wis., on September 3.

**John Reed**, formerly master mechanic on the Union Pacific at Cheyenne, Wyo., and more recently chief clerk to the superintendent of wages of the Denver & Rio Grande Western, died at Denver, Colo., on September 1.

**Charles F. Pierce**, well known as a railroad supply man and a former railroad man and at one time president of the Western Railway Club, died in New York recently at the Presbyterian Hospital. Mr. Pierce was born in Boston in 1848 and attended Boston English High School. He entered railroad service about 1870 with his father, who was treasurer of the Atchison, Topeka & Santa Fe. Mr. Pierce established the Tiffany Refrigerator Car Company, being a pioneer in this field, bringing fruits from California under ice across the desert to eastern markets. Mr. Pierce left this field for the railroad supply business, representing various concerns and continued in it until the time of his death.

**J. H. Abrams**, superintendent of the Southern division of the Colorado & Southern, with headquarters at Trinidad, Colo., died suddenly while en route to Pueblo, Colo., for treatment for paralysis. Mr. Abrams entered railway service in 1879 in the operating department of the Atchison, Topeka & Santa Fe. He later served that company, the Chicago & Northwestern, the St. Louis-San Francisco, the Denver & Rio Grande Western, the Colorado & Southern, the Southern and the Missouri Pacific in various capacities, from telegraph operator to assistant division superintendent. He was appointed superintendent of the Southern division of the Colorado & Southern in November, 1909, and held that position until his death.